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ComputerWeekly

Thursday, May 19, 1983

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30 DP candidates take on the (Party) system

by John Riley

THE computer industry is fielding about 30 candidates in the General Election. They come from all sectors of the industry, and cover all the main parties.

Margaret Joachim, an APL consultant with I.P. Sharp Associates is standing for the Liberals against Mrs Thatcher in Barnet and Finchley. "There is no point in propping up old industries – we must develop the newer ones and make sure people can retrain and equip themselves," she said.

Other Liberal candidates include Ian Brook, who sells word processors for AES Data (Henley); Richard Carden, a systems engineer with IBM Norwich (South Norfolk); John Hemming, senior consultant with software house SMS UK (Birmingham, Hall Green); Steven Mulholland, a senior computer operator with Thames Case (Wirral West); Ray Poynter, founding director of Database Computer Consultants (Nottingham South); Leslie Stringer, administrative manager with Reliance Systems (Wellingborough) and John Waller, managing director of systems house Insurance Systems and Services (Twickenham).

Peter Burton, managing director of Case (Computer and Systems Engineering) who is standing as SDP candidate for Watford, outlined the Alliance's differences with the other parties. "British Telecom is a good specific case. We are not in favour of total privatisation or nationalisation. We would divide it into two – the networking side to be kept public, and the services and equipment side to be privatised."

Also standing for the SDP Party are Howard Gibson, manager of personnel relations, IBM, Havant (Chichester); Ralph Leishman, a computer audit specialist with a firm of chartered accountants (Cunninghame North), and Lester George, managing director, Ferranti Instruments (Ellesmere Port).

Timothy Wood, a project manager with ICL Reading, is standing for the Tories in Stevenage. He is one of those who developed George III, and produced a Bow Group pamphlet on the use and manufacture of computers which has influenced the present government. Other Conservatives include Leslie Lawrence, a software engineer with Sperry in the maintenance and support group for V77 minis (Newcastle-under-Lyme); Colin Hancock, Director of TK International Foods, who was national chairman of the Business Computers Users Association (Grimsby); and Simon Coombs of British Telecom (Swindon).

"Labour would have put more into implementing the recommendations of the Alvey Report," said ICL software marketing manager Colin Bastin, who is the Labour candidate for Wycombe.

Martin Stears, the Labour candidate for Broxbourne, is also from ICL, an analyst programmer from ICL Stevenage. Other Labour candidates include Joe Gluza, computer officer at Cambridge University (Cambridgeshire SW); Jon Gray, systems analyst with Somerset County Council (Taunton); and David Hewitt, who is in the purchasing department of IBM Havant (South Dorset).

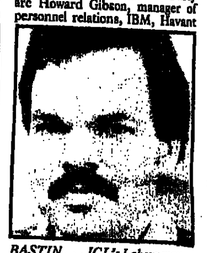
The four Ecology Party candidates are Nigel Callaghan, Geoffrey Darnton, Alan Francis and Margaret Harty.

The Scottish National Party has two candidates, Alasdair Morgan and Roger Knox.

The sole Plaid Cymru candidate who is from the computer industry is John Dickson, a systems analyst with Wales Gas (Vale of Glamorgan).

WOOD . . . ICL's Tory.

BURTON . . . Putting SDP Case



BASTIN . . . ICL's Labour man.

JOACHIM . . . Liberal challenge to Thatcher in Finchley.

Redundant chief's threat to sue Philips

by John Kavanagh

A FORMER senior manager at Philips Business Systems in the UK is preparing to take the company to court over the alleged non-payment of commission and expenses totalling £8,000.

And Andrew Cereseto says he could be a test case for other regional managers made redundant by the firm last year.

Cereseto was one of five regional managers affected by a company restructuring in February 1982. He and two others were made redundant and sent home on basic pay to sit out their six months' notice. This is common practice among computer companies which do not want to give departing staff the chance to gather customer lists and other information.

But Cereseto says during that six months he lost commission which normally made up one-third of his salary. And he says the company failed to pay "standard" expenses and allowances which were written in his contract.

Cereseto also claims Philips is denying that he was on a senior grade. The grade is not written in his contract because of paperwork delays, but he has the announcement of his appointment from the company notice board. That states the grade.

Cereseto's claims do not only cover the six-month redundancy notice period. He says Philips owes him commission on the year before the restructuring.

Philips has offered £400 "to settle amicably." Managing director Brian Manley told Cereseto in a recent letter that the "termination package was correctly calculated." The company knew of no legitimate claims, Manley said. The £400 related to the expenses claimed.

Cereseto said the matter was now with his solicitor.

He added that the other two regional managers were watching his case before deciding whether to follow him into court.

Philips declined to comment.

'Japanese have put too much effort into robots'

by Andrew Thomas

THE Japanese have gone over the top with robots, says a top UK engineer. Professor Wilfred Hegginbotham, director-general of PERA, the Production Engineering Research Association, was speaking at the opening of the robot demonstration, training and development centre last week.

"The Japanese have overdone it," said Heginbotham. "They're putting too much effort into robots which can cope with very high degrees of disorder. Things shouldn't be in that state in the first place – that's not engineering. They've got robots doing jobs which could just as easily be handled by 20 diodes."

And Heginbotham also stated the current vogue for voice recognition systems. "If you're not careful, you can get bogged down in humanoid concepts. The future is intermachine communication not human interfacing."

BBC goes live with its micro show

by Nuala Moran

THE BBC intends to show in its next programme in the Computer Literacy Project that "the reality of working with computer hardware and software is that many things can and do go wrong."

The demonstration will take place on October 2, when a live special lasting 115 minutes will be screened on BBC1. The programme will be presented by Ian McNaught-Davis, managing director of Comshare and presenter of *Making of the Most of the Micro*, who will be joined by a panel of experts, micro users and a studio audience.

According to the BBC the programmes which made up the first two TV series, *The Computer Programme* and *Making the Most of the Micro*, "took hours of studio time and careful editing to ensure that all hitches were erased in the final product." By doing a live programme the producers are hoping to capture some of the reality of using micros, but also to show that when things go wrong a great deal can be learnt.

The BBC's admission of how much time went into producing a smooth finished product fits in with the comments made by McNaught-David to the London branch of the British Computer Society at the end of April. He said "the whole thing was a disaster."

Most of the programme makers spent a great deal of time trying to get the micros to perform the most elementary tasks he said, and "the only micro that worked was the one you saw."

The panel of experts joining McNaught-Davis on the live special will include John Cole of Acorn, Richard Fothergill of the Microelectronics and Education Project, and Ian Trachman, a software consultant who worked on the previous two series.

A phone-in line to the studio will give viewers a chance to put their computer queries to the panel.

Anyone interested in taking part in the programme either as a member of the audience or in the phone-in is invited to write with questions, comments or suggestions to Micro Special, PO Box 7, London W3 6XJ, giving a daytime telephone number.

● The BBC Micro is reckoned to be the front runner as the standard machine for Norwegian secondary and primary schools. Norway's Department of Education has recently recommended a micro in schools programme.

Unix 5 to run on top chips

by George Black

WESTERN Electric, the manufacturing arm of American Telephone and Telegraph, has agreed to adapt its Unix version 5 operating system to fit with chips made by Motorola, Intel and National Semiconductor. The chips involved are NatSemi's 16032 family, Motorola's 68000s and Intel's 286s. Western will launch its own Bell Mac chip in competition later this year.

NatSemi's Unix campaign was advanced at the National Computer Conference in the US this week where its Unix-lookalike Genix was unveiled.

NatSemi said that Unix version 5 source code was to be modified to run on its 160320 chips and would be available in the first quarter of 1984.

Motorola said its 6802-based version would be called V/68 and would be commercially available next year, though the first product was likely to be completed within 90 days.

Intel said version 5 would be adapted to run on its 286, the top of the high-powered 8086 range.

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Systime pays the price for CDC's £8m

by John Kavanagh

UK SYSTEMS builder Systime has paid a heavy price for the injection of new finance. Out goes chairman John Parkinson, while founder managing director John Gow becomes marketing director.

And the company has made a "very substantial" payment to US minicomputer supplier Digital Equipment in a High Court action over software copyright.

US mainframe giant Control Data is now the biggest single shareholder, with around 40%. The company has put £8 million into Systime – and put in a senior marketing vice-president, Vernon Sieling, as chairman and acting managing director. Parkinson has left Systime to be a financial consultant. Gow is vice-chairman as well as marketing director.

The company will be looking for a new permanent managing director.

Existing institutional shareholders have put in £5.8 million – plus £3.4 million in new convertible preference share capital.

All the shareholders said Systime would keep independent. It will go for a Stock Exchange listing, possibly in the next six months.

The government's British Technology Group, a shareholder since 1977, welcomed "the willingness of the private sector to meet Systime's future financial needs."

Gow said he was "very happy" with the new Systime. "We have a lot more finance than we have ever had and our sales situation is very buoyant," he said.

He added that the company had cleaned the slate with DEC over software copyright and had a new trading agreement. "We've cleared our differences and now have a happy association with DEC," he said.

Systime did not contest DEC's High Court action. Gow said the company wanted to settle the dispute quickly and get on with trading. Systime will now deal with DEC in the UK rather than with the US headquarters, as in the past.

DEC said it was pleased the dispute had been settled and looked forward to a "mutually beneficial trading relationship".

The settlement, worth "several million dollars", involved agreement by Systime not to infringe DEC software copyright and a promise to "strengthen the proper monitoring and reporting of software licensing".

This was DEC's second High Court victory over UK firms in two weeks. Early this month it won an order restraining the small systems house Darkcrest from infringing its software copyright and passing itself off as a DEC OEM.

SIELING . . . Control Data man comes in as chairman and acting managing director.

ICL £22m half-time profit

by Kevin Cahill

ICL has bounced back into the black with half-year profit of £22.7 million and turnover up £65 million.

According to chairman Sir Christophor Laidlaw turnover for the period October 1, 1982 to March 30, 1983 was £401.2 million compared with £335.1m for same period in 1981/82.

The £65 million improvement was based in part on a 30% growth in deliveries of the DRS distributed product, which is now accounting for up to one-third of the company's sales.

Sir Christophor said the company's network product line, targeted as the engine for growth in the remainder of the Eighties, is continuing to develop satisfactorily, and the joint development with Fujitsu on the DMI and Estriel mainframes is on time and also progressing satisfactorily.

There was no mention of the delayed Mitel-PABX in the chairman's initial statement but Sir Christophor noted that the huge project to computerise PAYE is going well.

Outside the UK good progress has been made towards profitability in all the subsidiary companies.

The trading profit of £22.7 million for the half year compared with a loss of £13.1 million for the same period in 1981/82.

Because of the rights issue Sir Christophor was able to show total debt at the company down to £59 million worldwide, compared with £180 million at the beginning of September 1982.

This reduction has helped the company to show a healthy £12.5 million post-tax profit. This was just about the middle of most analysts forecasts.

Industry analyst Nick Measham, of stockbrokers Laurie Milbank, said the re-appearance of growth at ICL was very welcome and he was looking for a full year sales of between £800 and £850 million.

CARPENTIER . . . "Ready to drop programme if necessary".

Politicians told to stop meddling – or £930m Esprit is off

by John Riley

EUROCRATS last week warned that they will withdraw the proposed £930 million fifth generation research programme Esprit if Euro-politicians meddle with it.

The European Commission is keenly aware of hold-ups and cutbacks in the current Multiannual Informatics Programme caused by inadequate provision of administrative resources, and is determined that Esprit will not suffer for that reason.

"If we do not get the requested administrative resources to manage the project we will not take responsibility for managing the programme," said Dr Jean-Marie Cadiou, director of the EC Information Technology Task Force, speaking in Brussels last week.

Michel Carpentier, director-general of the IT Task Force, and responsible for Esprit, confirmed: "We are ready to drop the programme if necessary." He added that he did not expect a need for a large management staff. The 9268 man years of research between now and 1993 would need up to about 80 co-ordinating staff when the programme is in full swing – about half the normal proportion for EC projects.

Further details of the proposed programmes were revealed last week. The subject areas are the same as those outlined in the draft proposal which has already been published. These include microelectronics, software technology, advanced information processing, computer integrated manufacturing and office automation.

The Commission is enthusiastic

■ Continued on page 2.

Sperry gets $12m order for airline net

THE German international airline Lufthansa is developing a worldwide communications network, Liftnet (Lufthansa Integrated Information Transport Network). Following a year's study to determine which system to use, the company has placed a $12 million order with Sperry.

This includes 22 Sperry DCP 40 systems, a 1100/62 multiprocessor system, and CMS 1100 software.

HP in 16-bit race

HEWLETT-Packard has moved into the 16-bit business microcomputer market. The US electronics and desk-top computer giant has signed a deal with Digital Research to make its CP/M-68K operating system available on the HP Series 200. And the company is preparing to launch Unix, another contender for the title of standard microcomputers operating system, on the same 200 range.

Bankruptcy fear

LONDON software house Oliver Budge has been struggling to avoid bankruptcy this week after its backers Technical Development Capital refused it a further injection of £150,000. Mansging director Richard Oliver Budge said the firm would have to decide by the end of the week whether it would be able to raise enough capital to carry on or to call in the receivers.

Star turned down

STAR Computers' £500,000 bid for MGE Systems has been turned down. The UK systems house wanted to take over the accounting and professional software specialties to gain control of its Data General-based Partner suite. But MGE managing director Mike Edwards said there was not a good match between the two firms.

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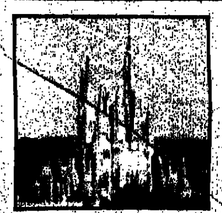

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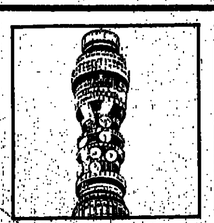

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Mock-up was used to win $84m deal

PARADYNE of Florida last week admitted that it had used a mock-up of a data encryptor in winning an $84 million social security administration contract.

The Securities and Exchange Commission (SEC) had sued Paradyne, charging that the company passed off the mock-up as the real thing in a preliminary demonstration to social security officials.

Paradyne president and board chairman Robert Wiggins made the admission in a carefully worded letter to stockholders issued last week. Until that letter, the company had steadfastly denied the SEC allegation.

Politicians warned off

■ From front page.

and optimistic about the success of the main Esprit programme, as it is to be industry driven, and the 12 top European companies have already been collaborating in the formulation of the programme over the past two years.

Cadiou was anxious to point out that the Esprit programme is not a protectionist measure. "Esprit is not a declaration of war against Japan or America", he said, "it is not a programme *against* but a programme *for*. The EC has nothing against transcontinental co-operation providing Europe is not just a link in the chain and can take part in the strategy." (But Alvey director Brian Oakley calls it war. See story page 3).

The programme now goes through a nail-biting phase. The proposal has to be approved by the Council of Ministers after taking Parliament's and the Economic and Social Committee's opinions into account. It is hoped that the decision will be made in late October, in time for its budget to be approved in December.

FEIGENBAUM . . . "US firms pass up opportunities through an emphasis on short-term profits."

Fifth generation project threatens US dominance

Fast profits won't beat the Japanese

by Robert Parry

US FEARS that Japan's fifth generation project will cut American dominance of the computer industry surfaced at last week's National Computer Conference in Anaheim. Unless the US quickly makes long term plans to focus its computer development activities, it will lose out to the Japanese and European consortia working on fifth generation computers.

US firms pass up opportunities for future technological developments through too great an emphasis on short-term profits. IBM and other large computer companies do not share the results of research, leaving many technological developments to go unused, said Edward Feigenbaum, of Stanford University.

The amount of money the US has been sinking into advance computer R&D work is not the sticking point – according to artificial intelligence worker Feigenbaum. Japan's Institution for Next Generation Computer Technology, ICOT, has a 10-year budget of around $855 million. "It's significant but not scary," added Feignbaum, noting that IBM's annual R&D budget exceeds this.

"The challenge has evolved because these various competitor nations and coalitions of nations have perceived that the US approach to computing has not been very appropriate in terms of exploiting opportunities that have developed here," said David Brandin of US-based SRI International.

The feeling that came out of this fifth generation conference session was that to combat this Japanese threat – which far outweighs any from Europe – the US government should step in to organise the wealth of knowledge within American companies. Any US companies not prepared to participate should be forced into it.

A start has been made on industry co-operation through the Microelectronic and Computer Technology Corporation (MCC) set in motion by Control Data's William Norris and bringing together 12 high technology companies in a R&D consortium. It has picked on a site – Austin, Texas – and should have a basic management force working under its president Bobby Inman by August.

'US will buy 85% of LANs'

by Donald Kennett

MORE than 85% of the sales of local area networks will be in the US, according to US industry analysts Business Communications of Stamford, Connecticut.

Worldwide local network sales were worth $127 million last year, according to BCC's latest report* Emerging Local Area Network Business. This year the figure should double and by 1990 it should grow six-fold.

In the US, the growth is being fuelled by the fact that peripheral equipment and applications software are accounting for an increasing proportion of system costs. The implementation of networks designed for factory environments and of software to handle an increasing variety of networked peripherals has generated interest from new business sectors, the company says, taking networks outside the university, government and financial institution sectors.

Last year, one per cent of all US companies with more than 20 employees had LANs installed. This proportion was expected to grow to eight per cent in 1986 and 17% by 1990.

Specialist LAN companies such as Ungermann-Bass and Network Systems currently had two thirds of the market value, but this share would go down although the number of networks they installed would rise in relation to their competitors.

Competition came from PABX companies whose products supported data processing applications and video transmission. In the future it would come additionally from computer companies such as IBM and Hewlett-Packard and telecommunications companies such as American Bell.

The most rapid technological advances had been made by companies making Ethernet-compatible networks, the report says.

* Emerging Local Area Network Business, Report number G-074, 150 pages, $1,250. BCC, PO Box 2070C, 9 Viaduct Road, Stamford, Connecticut, USA.

CADIOU . . . "A number of people on the Esprit panels were also on the Alvey Committee."

Union row over Irish hospital computers

Tom MacSweeney

PLANS by the Irish Department of Health to computerise Irish hospitals have been hit by union objections.

The Department has been strongly criticised for its handling of the situation, having announced that it had asked the Dublin-based American company, McAuto Ireland, to set up two pilot schemes – one at St James's Hospital in Dublin, the other at the Mater, also in the city.

Following this announcement, the Department was accused of making its decision without proper consultation and without comparing the McAuto systems with those of another competing company.

McAuto was set up evidently in anticipation of getting the business, but has never before installed computer systems in Ireland.

The other competitor for the contract, said to be worth about £60 million, was SMS Ireland, which has installed systems in 16 Irish hospitals.

The Local Government and Public Services Union has complained that it has had great difficulty in getting information about hospital computerisation from the Department and alleged that in some cases is was misled.

At the weekend the Department announced that the pilot project for St James's Hospital had been temporarily halted.

There is also confusion about the type of equipment to be used. A Department of Health spokesman claimed that SMS had suggested using the same equipment as McAuto intended to use, but SMS evidently claims that it was asked to quote for American software, but would prefer to use its own Irish products.

'Esprit offers greater support than Alvey'

by John Riley

SMALL companies can get greater support from the Common Market's Esprit scheme than under the UK's own Alvey programme, it was revealed this week.

Some smaller, high-risk enterprises could get more than the 50% official backing offered by the British government. And universities which cannot get support from industry but have submitted outstanding proposals could even get 100% grants from the EEC.

Alvey programme administrators have been worried that the government's decision to limit its underwriting to 50% – Alvey himself recommended grants of up to 90% in deserving cases – would be too low to be effective. The fear was that many smaller but highly innovative companies, especially in the software engineering field, would be cut out of the project.

They would prefer to fund research themselves than get only half of the work paid for by the government and then be obliged to share their results with other team members.

Commission officials said a substantial number of the proposals sent in by 620 organisations had come from smaller companies.

Dr Jean-Marie Cadiou, director of the Commission's Information Technology Task Force affirmed that there is communication between the national programmes and Esprit. "A number of people on the Esprit panels were also on the Alvey Committee", he said. "Communication will be between us, the national authorities and industrial participants, and must be on a project to project basis to avoid duplication, or at least to explain the rationale behind any duplication."

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Inquiries: 01-661 8642/8641
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Deputy Editor Ron Coates 01-661 3124
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'We are at war' – Alvey director

THE new director of the Alvey Programme, Brian Oakley, set the scene for UK initiatives on fifth generation computers with talk of an economic war.

"I believe we are engaged in war – an economic war more important than that affair in the South Atlantic."

Oakley, who was speaking at the SPL-Insight inaugural dinner in London last week, added: "The UK cannot get involved in trifling affairs while the enemy is walking across the parade ground."

SPL-Insight is a study group set up by SPL to look at knowledge-based systems and the user interface.

Oakley, who is commanding widespread support from industry, academia, and government in his role as frontman for the Alvey Programme, warned his audience that the UK must not fritter away its excellence while "industry fights industry and government department fights government department."

Oakley gives up his post as secretary of the Science and Engineering Research Council on June 2 to take up an under-secretary level appointment at the Department of Industry. He says he will quickly form a small, four-man directorate "lacking in bureaucracy", which he promises will be "fast acting" and open to advice at all times.

Oakley's determination to succeed is obvious, but he admitted that the job really requires "someone who can walk on water."

"I can swim," he said, and added that, whatever Number 10's attitude is towards government intervention, the people in Whitehall had every intention of making Alvey work.

This no-nonsense approach has been welcomed by industry leaders, and Oakley emphasised that the Alvey report is a framework to start on, not a five-year prospectus. That should be of some comfort to David Fairbairn, director of the National Computing Centre, who voiced concern that Alvey may be following too closely in the footsteps of the Japanese.

The Japanese fifth-generation programme is a marketing exercise as much as anything, geared to what Japan is best at, he said. He suggested the UK should consider a different emphasis that caters to UK strengths, particularly in communications.

The five-year, £350 million Alvey Programme is charged with establishing collaborative research in software engineering, very large scale integration, man machine interface, and intelligent knowledge based systems. The government's contribution will be £200 million, with the rest to come from industry.

OAKLEY . . . "I believe we are engaged in war."

Upgrading problems halt Stockholm share deals

by John Kavanagh

STOCKHOLM stock exchange has closed for eight days in the last four weeks because the share registration computer system could not cope.

The registration company, VPC, runs two ICL 2966 mainframes and has been changing to the 2900 series operating system, VME, from ICL's DME system, which allows programs from its old 1900 series to run on 2900s.

Changes in tax relief rules affecting share trading has led to a rapid growth in business over the last two years and VPC had to bring forward its conversion plans by a year.

"We had to move too quickly to VME," said computer manager Bengd Adamson. "We did not have time to test complete suites of programs."

To enable VPC to catch up, the stock exchange had to close for a whole week in early May and on other days trading was restricted to two or three hours.

NCR tries to plug a mainframe gap

by Kevin Cahill

DESPITE gloom among forecasters about the future of non-IBM compatible mainframes, NCR has staked its claim to a place in the sun with seven new models for the V8600 series.

The new machines, which plug a competitive gap ranging from the IBM 4341 model 11 to the 3083 uniprocessor in the 3081 series, are all 32-bit processors.

The announcement was made at the National Computer Conference in the US.

The offering is a single processor, the V8635, and a tightly coupled diadic processor the V3645. Together they are the building blocks for a configuration of loosely coupled processors running under NCR's proprietary operating system. They perform best in a transaction processing, high volume environment, according to an NCR spokesman.

The two basic machines can be configured into five separate models, to give the seven products NCR is advertising, and entry level prices in the US are about $500,000 for the V8635 and just under $800,000 for the V8645.

All the new mainframes are air cooled and are based on emitter coupled logic semiconductor technology. Separate microprocessors drive part of the I/O system, giving two advanced features called Dynamic Channel Director (DSD) and Dynamic Channel Exchange (DCX), which substantially increase the availability and utilisation of the I/O device.

APL Courses for APL professionals

Sphinx, in conjunction with Dyadic Systems Limited, announce a series of two-day courses on Dyalog APL.
The locations and starting dates are listed below.
London 9th, 13th, 16th June.
Birmingham 13th June. Manchester 15th June.
Newcastle 20th June. Edinburgh 20th June.
Leeds 22nd June. Glasgow 22nd June.
Bristol 27th June.

These courses will highlight the main features of Dyadic's new Unix based Dyalog APL now running on a number of 16 and 32 bit microcomputers. A working knowledge of APL is assumed.

Fee: £195 inclusive of course material and lunches. Any participant purchasing Dyalog APL within two weeks of attendance will receive a total rebate of the course fee.

Applications with cheque to Mrs H. Smith, Office Administrator, Sphinx Limited, 43-53 Moorbridge Road, Maidenhead, Berkshire SL6 8PL. Tel: (0628) 75343.

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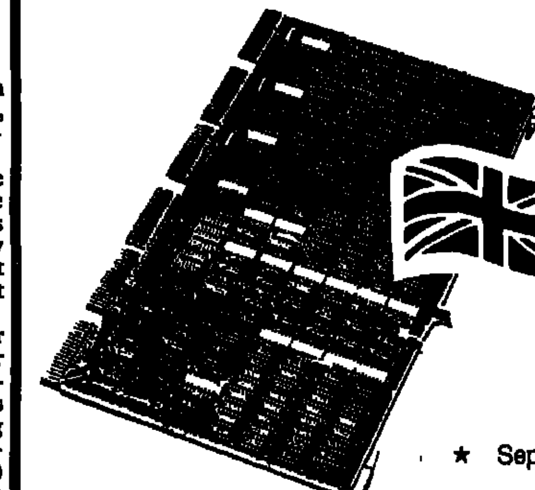

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Alvey plans are a 'waste of money'

by John Riley

SOFTWARE guru James Martin slammed the Alvey programme last week, claiming that it intends to waste taxpayers' money to develop a product that already exists.

Martin is chairman of international consultants DMW, which markets Use-it. This is a facility that designs mathematically correct systems and generates bug-free code to run them, and is considered by Martin to be as revolutionary to software development as the transistor was to hardware development.

Use-it, which may eventually make programmers obsolete, according to Martin, has stimulated serious interest by top computer manufacturers. According to DMW, ICL supremo Robb Wilmot is convinced enough in its potential to evaluate it – even though he will have to buy two Digital Equipment Vax minicomputers to run it.

DMW is well respected and influential within the industry – the company persuaded Texas Instruments not to scrap its personal computer plans, and also produced a 10 years forward look for ICL last autumn.

"There is no mention of fourth generation languages in the Alvey Report", complained Martin, "and they have never heard of Use-it. I would be willing to demonstrate it to the committee so that they don't have to spend $100 million of taxpayers' money trying to make it."

Use-it was produced by Margaret Hamilton and Saydean Zeldin, who saw the need for a bug-free code generator when working with the Apollo space programme in the 1960s. They ignored von Neumann constructs which are the basis of modern computing and started rebuilding constructs that can be mathematically proved. They split away from the Apollo programme and formed HOS, a small Boston-based research company.

Use-it provides graphic tools for top down systems design, analyses all the parts of the requirements definition for logical correctness, and then produces bug free source code.

The future looks bleak for programmers, although Martin still sees Cobol in use until the end of the century. However, programmers will have to learn to use more powerful tools if they want to earn money. Programmers are happy to automate other people's jobs, but unhappy when it comes to automating their own, so he expects resistance from programmers and DP departments.

MARTIN . . . No mention of fourth generation languages.

Bureau's profits up to £321,000

by Nuala Moran

THE City of London DEC bureau, Rolfe and Nolan, which specialises in supplying computing services to futures and commodity brokers, has announced profits before tax of £321,000, for the year to February 1983. This is up from £300,000 in 1982, an increase of 7%. Turnover increased 34% from £1.355 million in 1982 to £1.821 million.

The company provides computer services to commodity brokers, who act as middlemen between producers and manufacturers, buying and selling such goods as agricultural produce, metals or foreign currencies. It has developed special accounting programs for this purpose. Presently brokers buy bureau time from Rolfe and Nolan to run these applications, but there are plans to sell the programs for use on the clients' own machines.

At the moment Rolfe and Nolan is redeveloping its accounting programs and Malcolm Rolfe, managing director, explained that it was the cost of this that had held back profits. "The programs are being redeveloped to incorporate some additional features and update them so that they will run on a Digital Equipment Vax," he said. The programs previously ran on a PDP11.

The costs of this investment were partly offset by an increase in commodity business. This was in part due to an increase in the number of clients but also because there was a boost in activity in the commodity markets. And new markets are being set up.

"Eight or nine years ago you were just talking about accounting for contracts of cocoa, tin etc. Now the commodity and futures markets are dealing with currencies, American stock indices, and interest rates," said Rolfe.

ROLFE . . . Boost in activity in the commodity markets.

Two more micros arrive from Japan

by Andrew Thomas

THE trickle of Japanese micros on to the European market is showing signs of becoming a flood. Following last week's news that Fujitsu will be bringing eight and 16-bit micros here in the autumn, two other companies are moving into the domestic market.

The first product of the collaboration between Fujitsu and Matsushita comes in the shape of the Duet 16, an 8086-based micro aimed at the small business market and launched by booming systems house Lambart. The Duet is produced by Panafacom, a company jointly owned by Fujitsu and Matsushita, and features up to 512K of RAM and 32 Mbytes of backing store on board.

And going for the lucrative home market is the first low-end product from Sord, which has up till now concentrated on business systems. The M5 is aimed squarely at the Sinclair and Texas machines, and comprehensively outperforms its competition, and not a few more expensive machines, in the area of graphics.

The £189 M5 is a dual processor machine. A Z80A is used as the main processor, and comes with 4K of RAM. But the machine's graphics excellence stems from the use of a TMS9918A 16-bit chip, with 16K of RAM. This releases the whole of the 4K RAM area for use by the main processor, giving a main store capacity at least equivalent to that of machines with apparently larger store sizes.

And UK distributor for the M5, Computer Games, says that a 3½ inch disc drive will be available later this year, offering 100 Kbytes for £100. The Sord machine shows its Japanese ancestry in the offering of a Katakana character set, a feature not found on too many micros on the UK market.

The Duet 16 is handled in the UK by Lambart Microcomputers, headed by Michael Marks, who as MD of Ingersoll was responsible for the launch of Atari micros here.

"We've sold 40 so far without trying," he says.

"We reckon on selling at least 1,000 machines this year."

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Users 'unaware' of standards issue

by Donald Kennett

USERS are planning their systems purchases on a short-term basis, unaware of the implications of Open Systems Interconnection standards, according to a study carried out for the Department of Industry.

Presenting the results of the study last week, project manager Jerrold Donington of Langton Information Systems said: "We take the view that organisations showed a lower level of awareness of OSI than was desirable."

In conducting the study, which began last September, Langton interviewed 150 organisations of various sizes in government, industry and commerce. Academic institutions that have taken the lead in setting and using standards were excluded from it.

Representatives of the National Computing Centre and the DoI Information Technology Standards Unit, who introduced the subject of OSI standards to the audience of more than 100 users and manufacturers, repeated their constant plea for more user involvement in standards development and drew attention to the DoI's efforts to set up an IT Users' Standards Association.

But even Ian Dewis of BL Systems, a keen advocate of standards who based his company's communications strategy on their use, said that he found it hard to keep up with the technical details.

Users who are barely aware of the implications of standards are presumably going to find it unrewarding as well as difficult.

Donington said that a major benefit from the study had been the exercise of expressing OSI standards concepts in terms that were meaningful to a wide range of users.

Last Japscam man faces sentence

by Howard Karten

AFTER pleading no contest, the last defendant in the Hitachi-IBM case is to be sentenced in mid-June. American Thomas Yoshida, a computer consultant, could face up to five years in prison and a $10,000 fine for the charges of conspiring to transport stolen secrets.

However, this latest action will not necessarily end the so-called Japscam case. Although two Hitachi men and the company have pleaded guilty earlier this year, negotiations between the US Justice Department and the Japanese government regarding extradition of nine other Hitachi men are continuing.

Yoshida's "nolo" plea came on May 13, only a few days before Yoshida's trial was scheduled to start. At that hearing, Federal Judge Spencer Williams unsealed 13 hours of video and audio tapes and transcripts of the tapes made during the FBI's undercover operation.

The tapes are said to show that Yoshida and the other defendants and felons apparently believed the FBI totally. In addition, the tapes are said to be quite full of irreverent American humour, with FBI undercover operatives repeatedly referring to Isao Ohnishi, a top Hitachi official, as "Izzy," and good-naturedly disrespectful requests to "say hello to the emperor."

The tapes reveal that the Japanese believed that when IBM introduced new technology, its salesmen had it "easy" and could rely on sharply limited competition for at least 18 months. It was this lead time that Hitachi apparently sought to cut by

SALES BRIEF

Honeywell network for the RAF

A NETWORK of Honeywell DPS6 minicomputers is being installed by the RAF to control supplies. The order is for five machines, but could be expanded to become one of the biggest DPS6 orders the factory at Newhouse, Scotland, has handled. The machines will be installed at RAF stations throughout the UK.

The network is believed to replace a system based on two ancient ICL System 4 mainframes supporting hundreds of terminals.

£3 million deal

MINI-MAKER Gould has signed a ten-year agreement with information services company Geisco worth $3 million in the first year. The deal is that Geisco will use Gould's Concept 32/27 computers in its worldwide teleprocessing network.

Foreign parts

INSTRUMENTAL Rentals, the UK hire firm specialising in peripherals and small micros, has placed two orders with foreign-owned companies. The largest, worth £250,000, went to Hewlett Packard for desk-top computers. The other is for £50,000 worth of printers from Mannesmann Tally.

Union choice

A SMALL Surrey software house has picked up a £50,000 contract from the Association of Scientific, Technical and Managerial Staffs for a new membership system to run on an ICL ME29. TLR Software was chosen for the contract because it has already supplied membership systems for five other trade unions.

Network upgrade

ELECTRICAL wholesaler British Distributing Company has ordered two minicomputer systems from UK maker of fault tolerant hardware Computer Technology. The company, which already has two CTL computers, is upgrading its real time sales order processing network, and plans eventually to implement CTL's Momentum option which provides full resilient transaction processing.

$8 million drives

KENNEDY, the US maker of magnetic storage media, has won two big orders worth a total of $6.5 million for cartridge motor drives and disc drives. Data Systems Design has ordered 4,000 Model 6455 cartridge transports worth $5 million for a Winchester storage system, and D. H. Minicom has lodged an order worth $1.5 million for the cartridge transports, and the Series 7300 Winchester disc drive.

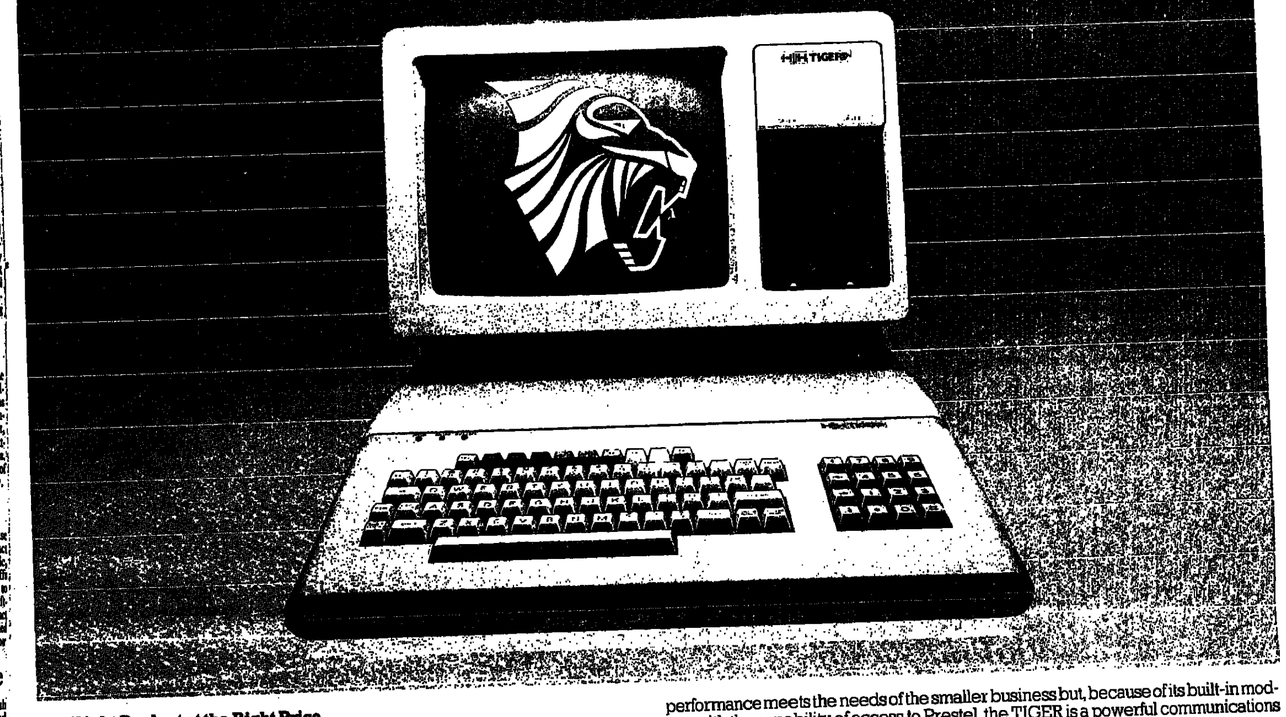
Council monitor

BUILDING maintenance at Surrey County Council will be monitored by computer after delivery of a £73,000 system from ABS Computers of Woking, Surrey. Based on an ABS MX10 mini, with the LADS software developed for a similar application for the Greater London Council, the package will keep a history of recent repairs carried out, and enable the council to estimate expenditure for the next five years.

Victory contracts

US MAKER of 16-bit micros Victory Computer Systems has ordered $5 million worth of peripherals from three US suppliers to incorporate in its Spirit and Pirate computer systems. DMA Systems of California is supplying $3 million worth of 5¼-inch Winchester disc drives, Quantum Corp will deliver eight-inch Winchesters and CIE Terminals will provide

THE TIGER FROM HH



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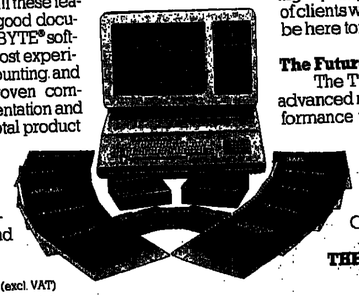

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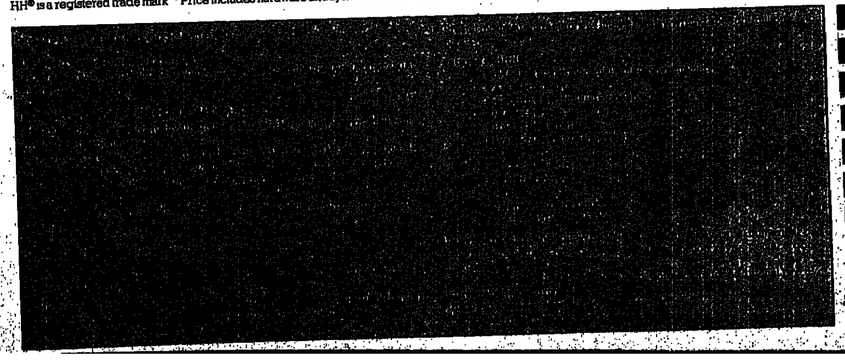

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NCC carries all micros before it

Robert Parry reports from the National Computer Conference

IT'S big, it's brash and it's blazing – but 130,000 people can't all be wrong. For most in the computer business, companies and individuals alike, the US National Computer Conference is the place to go to see and be seen.

This year the circus returned to Anaheim in California, sprawling across 320,000 square feet of convention halls, tents and hotels within hailing distance of Disneyland.

At times the conjunction was apt enough, with the Magic Kingdom's Fantasyland and Tomorrowland seeming fit descriptions of what was going on at the NCC – not to mention the cowboys of Frontierland.

But unlike the unreal world of Disney's creation, the unreal world of the NCC had few clear themes. Companies offering portable microcomputers stood hard by mainframe manufacturers and software suppliers across the aisle from those with high performance Winchesters or communications products.

At best it was tiresome, at worst overwhelming.

And, with a handful of exceptions, the NCC is no longer a place for major product announcements. These get lost in the morass of first showings of previously announced products and a rash of me-too introductions, or if from start-up companies get lost in some out of the way corner. The booths at the show are allocated on a points system, so those that have amassed brownie points by showing here before get the choice spots.

The security blanket comforting this cosy computer club had a couple of discernible threads. If you still needed to be convinced that micros were moving portable, IBM-wards and linking into networks, this was the place to be. If you doubted the future for smaller hard and floppy discs, the plethora of half-height drives and smattering of three-and-a-bit-inch units should have settled your mind.

It was not a show to see mainframes, despite the brace of major announcements from IBM and NCR, nor was there much in the way of software, except for a handful of mainframe-to-micro packages.

But if it was micro, and you could carry it, it was here.

Japan stole the scene with newcomers to the portable micro market. Sharp's new baby, the PC5000, left no doubt as to its portability – 11 pounds in weight and battery operated, with an eight-line liquid crystal display and bubble memory cartridges for mass storage.

It will come in the autumn, with optional printer and autodial modem – "all a person needs in a mobile office," claimed US national sales manager Ray Holding – plus applications software from an as yet unpicked software house to run under MS-DOS on the 8088 processor.

"Move over transportable, here comes portable," added Holding of this truly portable machine, very reminiscent of the US-made Gavilan launched earlier this month. Gavilan too was at NCC, attracting admiring crowds.

Toshiba brought in a "portable" version of its T100 microcomputer, a repackaging job on the established desk-top machine. With its clip-on LCD, the same basic unit is cosseted in foam inside a briefcase, with an acoustic coupler but no printer or discs. In all rather in the mould of the Sord M23 portable.

The third new Japanese take-away computer was the smallest – pocket size almost. The Canon X-07 comes in a unit the size of a paperback, with a four-line liquid crystal display and is Z80 driven. Memory can be expanded from 8K to 24K of RAM through memory cards – credit card like packages carrying battery backed CMOS RAM chips. It drew a lot of interest at the show, despite the melting heat in the tent area and the lack of English language documentation.

There were new US portables. Columbia's IBM PC look-alike appeared in a transportable guise – the Columbia VP, one up on latest from the founder of the genre Osborne, which was showing its Executive machine. But the Columbia VP was portable only in that the keyboard hinged up to cover the drives and the medium-sized screen and the box had a carrying handle screwed to the back.

Desk-top micros showed a strong Japanese emphasis too. Sord came in with a dual processor 8/16-bitter using Z80 and 68000 processors. It will run standard software from Sord's M23 under CP/M-80 or 16-bit software under CP/M-68K. Unix on the 68000 processor will come in the autumn. To hedge all bets, an 8088 plug-in module is available giving access to MS-DOS applications.

Fujitsu was also aiming high with its 8/16-bit Micro 16 Personal Business Computer. This Z80/8086 machine was shown with a memory board carrying Fujitsu's 256K dynamic RAM chips – giving a megabyte of memory on the one board. It will be deliverable this winter.

Meanwhile Mitsubishi spread itself wider, with a distributed system it calls DRS816. Up to eight 16-bitters built around 8086 chips can be linked via MP/Net and an "enhanced" MP/M-86.

Networking featured heavily in offerings from two US companies. Wang brought in a Local Interconnect Option to allow clustering of its Professional Computers through a high speed local area network with file and resource sharing, while Altos added Ethernet to its 586 family.

This will come in June as a plug-in communications board carrying Intel's 16-bit 80186 processor and Ethernet chip set. As well as Ethernet, X.25 capability will be added, plus faster running of 2780, 3780 and 3270 emulation software and an increase from five to nine users. Altos's own in-house LAN Altos-Net, presently an implementation of 3Com's U-Net, will appear in an enhanced second generation in the summer.

"With all these networking and communications facilities, the 586 offers a powerful but affordable solution for smaller and mid-sized businesses, as well as Fortune 1000 companies," says Altos president David Jackson. He reckons Altos to be the foremost shipper of Xenix systems now. (Xenix is the Microsoft implementation of Bell Labs Unix operating system.)

Altos is now shipping so many systems across its range, most of them multi-user, that it has branched out into terminal manufacture on its own preferring to sell turnkey systems with all parts carrying the Altos brand rather than selling TeleVideo terminals with Altos' own processor boxes.

All this emphasis on physically smaller machines, though not necessarily less powerful ones, was reflected in the mass storage devices that abounded. Half-height drives – with both hard and floppy discs – were round every corner, as were ever-greater capacity 5¼-inch Winchesters squeezing hundreds of megabytes into standard form factor units.

But the star of the show on the Winchester front was undoubtedly Control Data's Cricket 3½-inch drive carrying 5 Mbytes of formatted data. It uses plated media and thin film heads, and like the Rodime unit launched two months ago fits into the palm of your hand. It should be available for evaluation in July, and in production by the end of the year.

By this time next year it is expected to have grown to four times its capacity, by using both sides of twin platters, rather than the single sided single platter of this early unit rushed out to be at the NCC booth.

Other manufacturers are getting near to bringing out units with this form factor – popularised by the booming microfloppy drives in all their variety – and Tandon was showing to select customers. Seagate and Miniscribe are also close on the running.

NOT all the new machines were micros. Gould SEL had three new systems stretching from a desk-top micro to a virtual memory mini, the Powerstation series, and for those fed up with 8, 16 or 32 bits, Symbolics had a 36-bit tagged architecture Lisp-based computer aimed at symbolic processing in artificial intelligence applications. And Intel came out with enhancements to its System 2000 database processors, while graphics specialist Megatek showed a high resolution monochrome version of its Whizzard workstation.

The NCC took place this year in the shadow of Disneyland . . . and provided its own Fantasyland and Tomorrowland.

UK firms put on a brave show

THE British showing at [illegible] small enough to be [illegible] gether if you were [illegible] Micro Focus got round [illegible] by having two booths [illegible] through its US branch [illegible] other nestling among the [illegible] of British companies taking [illegible] on the Business Equipment [illegible] Association joint stand.

Things went well, [illegible] marketing manager Peter [illegible] as he took time off from [illegible] strating the company's [illegible] Cobol running on the IBM [illegible] Having the two stands [illegible] separated – one was in air-con[illegible] tioned luxury in the main con[illegible] tion hall while the other [illegible] in the tents – meant he [illegible] good chance of at least being [illegible] ticed by many of the punters.

Being noticed by all the [illegible] gatherers was not somethi[illegible] Future Technology Syst[illegible] wanted, even though it had [illegible] larger than expected stand [illegible] the absence of exhibition [illegible] John McNulty.

The company was pushing [illegible] OEM operation, built around [illegible] 16-bit micro architecture [illegible] under the Office and Electro[illegible] Machines Orion label.

"We didn't pull in the crowds [illegible] people just after leaflets," [illegible] technical director Martin Healey.

Paradoxically, Healey reck[illegible] to have picked up more [illegible] European leads than at any [illegible] exhibition this side of the Atlan[illegible] probably because those who [illegible] flown over were the top [illegible] and directors. Thorn EMI, [illegible] booth round the corner from [illegible] found much the same sort of [illegible] with good leads from Scandina[illegible] France and Germany as well as [illegible] US for its streaming tape produ[illegible]

IMLAY . . . *"The software is where the value and dollars lie".*

Software – where the dollars are

SOFTWARE made it at last at this year's National Computer Conference in Anaheim. The keynote address at this tenth NCC came from MSA's John Imlay – the first time a representative of the software and services industry has been picked for this honour.

In his hour-long performance, packed with slides, films, a satellite link to Washington, a concert violinist and above all jokes from the fast-talking Imlay, there were two main messages – that software is where the money is, and to survive the Japanese onslaught America needs a national information policy.

"People are thinking soft," said Imlay. "There is a move to workstation computers with connection to mainframes – and that connection is software to software. The software area is where the dollars and the value lie.

"The micro's role is that of personal computer, intelligent terminal and dedicated word processor. The term 'personal' or 'micro' will fade to what will be known as the workstation computer whose value will be the software, and the mainframe power will become a commodity. Central computers will just be data sources – nine-tenths of the computing will be done at the workstation area."

But if the US is to combat the "brain intensive" Japanese in this computers and communications medley, it must have a national strategy, and must recognise that information technology is a competitive weapon to be wielded at board level, not hidden away in the back office, Imlay added. He called for a federal agency to be set up to speak on information issues.

The importance of educating the coming generation should not be forgotten. The young need access to computers, and their educators need to be educated. "We must find the gifted children, who take a chip and play it like a violin."

And it was with violin playing – a rendering of "The Impossible Dream" overlaying Imlay the showman waxing poetical – that brought the audience to its feet to applaud his parting shot: "The survival of our industry is you, and the touch of a master's hand."

Over the top it might seem to jet-lagged cynics, but it was a masterly performance, and the 2,000 delegates who made it through half-built hotels and parking lots in the morning California sunshine loved it.

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System/36 in UK – but not all of it

by Andrew Thomas

IBM's long-awaited System/36 has finally arrived in the UK – or most of it has. For the US version of the minicomputer, designed to bridge the gap between the System/34 and System/38, has facilities which are not yet available here.

But UK software houses were let in on the secret early.

Launched at the NCC last week, the US System/36 boasts colour graphics on the 5292 Model 2 bit-mapped colour display. UK users have to make do with the alphanumeric Model 1. British PC owners will have to wait for the chance to use their micros as terminals to the System/36, whereas their American cousins can buy the necessary adaptor and emulation software now.

And there are other differences in the two announcements. In the US, intermediate and large systems product marketing director Bill McCahan announced that the System/34 was to be phased out. "It will be in limited new production from today," he said.

But an IBM spokesman in the UK claimed that there were no plans to scrap the System/34, which has about 3,000 UK sites out of 100,000 installations worldwide, and that the two systems were complementary apart from some overlap at the lower end of the System/36 range.

The new machines are being sold in the US as having more application programs than any other small IBM system to date, and offer 128K to 512K of main store and disc storage of up to 400 Mbytes. Up to 30 local and 64 remote terminals can be supported, and remote fault diagnosis is available for the first time.

System software comes in the form of the System Support Program (SSP) which is heavily menu-driven. System/36 machines for Europe will be built at Santa Palomba in Italy, and are due for first shipments in July (US) and September (UK).

First impressions of the System/36 are favourable. John Priestley, marketing manager of Hoskyns' banking division, is enthusiastic about its potential.

"The System/34 was IBM's best-ever selling machine in terms of boxes sold," he said, "and those people will be looking for more facilities. The System/36 is twice as fast at the same price.

"They've taken lots of other manufacturers' ideas and put them in one box," he continued. "It takes the old GSD (General Systems Division) chunk of IBM into the future, and avoids the big jump from System/34 to System/38.

"It's good news for us, and aggressively priced."

An unusual step for IBM was the conversion of Hoskyns KIBS banking package to System/36.

"They couldn't give us a machine to do the conversion," said Priestley, "so we gave them the code and they did it for us in two days. I'm sure it wasn't just for us."

But IBM refused to say if it intended to help all users in this way.

One user keen to get its hands on a System/36 is Wilkins Computer Systems. Within moments of the launch announcement, Wilkins announced a deal for the first UK system.

RIDGWAY . . . *"We want to move rapidly."*

Network Technology takes aim at Europe

by Nuala Moran

NETWORK Technology is aiming at Europe with its digital networking and interfacing products. The company is to establish distributors and OEMs in Europe in the marketing of its 3703 SNA network integrator. This is designed to concentrate clusters of ASCII and bisynchronous devices over a single line to an IBM or compatible host via a 3705 communications processor.

In charge of the NTL expansion will be Mark Ridgway who was recently appointed European operations manager. Ridgway joined NTL from ICL where for the last 18 months he was setting up and managing Trader Point, ICL's scheme for working more closely with dealers and software houses.

Asked about his decision to join NTL, he said: "NTL has a great growth potential in an area where I think the industry will develop strongly – that is, networking."

Commenting on NTL's proposed expansion, Ridgway said: "The distribution system will be set up in Europe in the next six to nine months. We want to move rapidly as we recognise that there is a great deal of interest among IBM users."

ICL 'mole' keeps an eye on US

by John Kavanagh

ICL has a top-level "mole" at one of the homes of US computing research. Michael Scott Morton, a professor at Massachusetts Institute of Technology, has joined the ICL board as the seventh non-executive director.

"I will be providing a pair of eyes and ears on US research, especially in universities," Scott Morton said. "I will be coming to the monthly board meetings and I shall play an active role. ICL feels I am well placed here to help them."

Scott Morton, 45, is professor of management at Sloan School of Management at the Institute. He specialises in the problems of developing systems to help management make decisions. He is now engaged on major research into the impact of information technology on management in the Nineties.

He also works on co-ordinating corporate planning and control systems with management information systems.

He won his doctorate at the prestige Harvard University in 1965 – with funding from IBM.

Scott Morton said ICL managing director Robb Wilmot invited him on the board after reading his book on decision support systems.

He said he would not have accepted the job if he felt ICL was not going to succeed.

Scott Morton is already a director of a US software firm, Index Systems, corporate planning consultancy Strategic Planning Associates and the diversified Emhart group, which makes do-it-yourself products such as Bostik.

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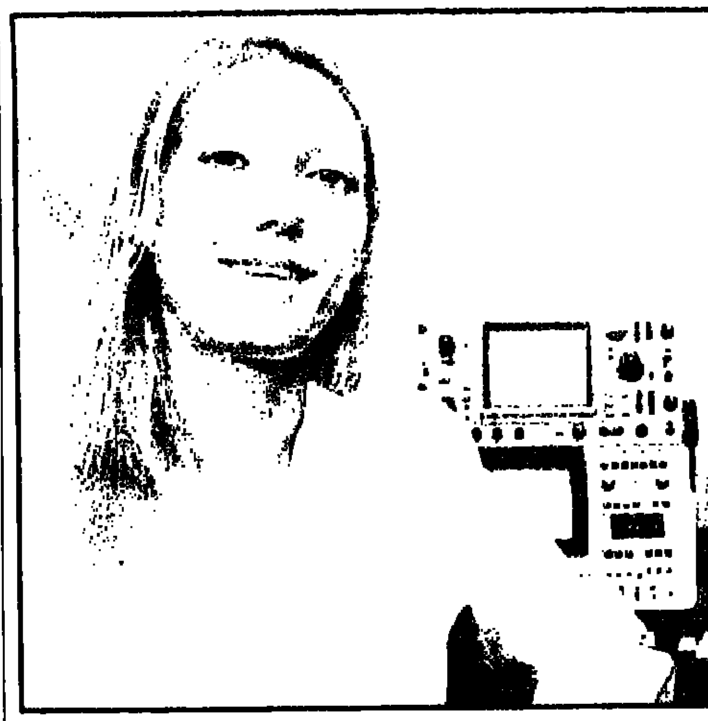


GORDON . . . *"Too much stress on Ada as a defence tool".*

Intel picks small UK software house to market Ada compiler

by George Black

INTEL'S Ada compiler for its 432 chip set is being marketed in the UK by High Integrity Systems, the 11-strong Hertfordshire software house – and two other Ada compilers will be introduced by Intel in the next 12 months.

Those under development will produce target code for Intel's 186 and 286 chips and all three are to be put through validation tests by the US Defence Department's Ada Joint Program Office.

So far no Ada compiler has officially matched up to the American National Standards Institute (Ansi) standard, although Rolm has said that its version is the first to meet the specification.

But High Integrity's managing director Daphne Gordon claimed Intel's compiler was the closest yet to a full implementation of the standard, achieving more than 95% of the requirements.

The 432 chip set, one of the first true 32-bit systems on the market, is said to have a good architectural match with the real time language.

The 186 and 286 chips are more oriented towards 16-bit implementation and are therefore less able to support some of the Ada functions.

Gordon said her firm had received more than 500 inquiries about the Ada products, for which they have sole European rights, in the past two months. Only one-fifth of these were from defence organisations.

"I think too much stress has been placed on Ada as a defence tool," she commented. "I would estimate that defence might account for 30% of the eventual market, but another 30% will be taken up by other real time systems and maybe 40% by new types of application altogether."

Many of the inquiries were related to engineering, robotics, process control and CAD/CAM enterprises.

"There are going to be quite a few Ada compilers available and their potential users are very sophisticated people who won't be hoodwinked," she said.

NCR Unix entry is on the way

by Andrew Thomas

NCR's entry to the Unix market is coming to the UK. The Tower 1632, launched in the US last November is scheduled for volume deliveries in the autumn, and trials are already underway in the North of England which could lead to an order for 300 systems.

The Motorola 68000-based Tower gets its name from its vertical housing which contains the processor, floppy disc drive and Winchester. Additional disc store is housed in a second cabinet which stands alongside the processor.

Up to 16 screens can be supported, although product manager John Olford says that the system is aimed at the four to eight screen user.

And the decision to go for Unix was an easy one, says Olford.

"Unix is the most powerful and versatile operating system available today, and its the industry standard for computer science departments. There's a terrific pool of expertise on the way."

One of the criticisms often levelled at Unix is its user unfriendliness.

"It's true that Unix was originally developed by Bell Labs for its own use by computer experts," says Olford. "But it's easy to write a new shell for the system in order to provide a more friendly system.

"We've taken Unix further than Bell – introducing five menu personalities. We allow five different levels of access to the system ranging from the first-time user to the experienced systems programmer."

And Olford points to NCR's hosting the inaugural meeting of the European Unix user group as proof of the company's commitment to the operating system.

A typical entry-level Tower configuration, with 512K of main store, one Mbyte floppy discs, 30Mbyte Winchester, one terminal and the operating system has a price tag of around £12,000. A maximum system with two Mbytes of mainstore and 232 Mbytes of backing store plus streaming tape and printer will cost the best part of £50,000.

Altergo £2m Saudia contract goes to Cord

by George Black

THE last remaining element in the collapsed Altergo empire was disposed of when Cord Designs took charge of the £2 million Saudia airline contract for a flight information system.

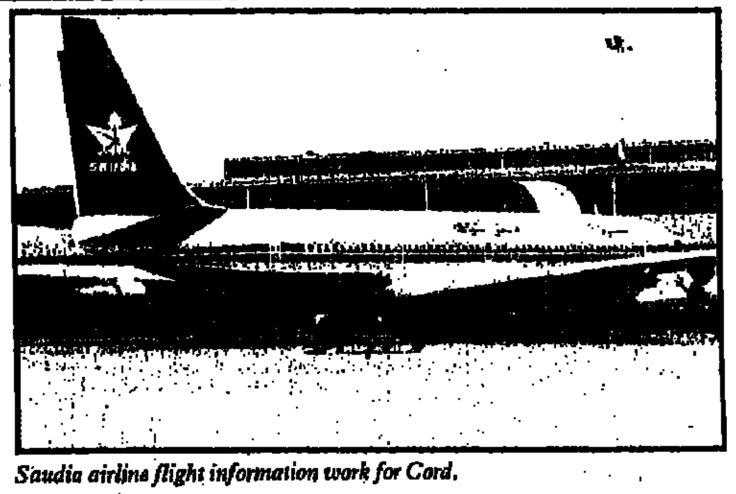
Managing director of the Staines systems house Gerald Penney said about one-third of the work had already been done by Altergo and the project was now scheduled for completion by mid-1984. Of the 22 systems staff who previously worked on the Saudia system with Altergo Ireland, all but one are now with Cord.

"I've nothing but praise for the way they stuck together and kept their nerve while the receivers sorted things out," said Penney.

He is now looking for replacements for three of the top Altergo Ireland managers, David Joice, Stephen North and Philip Devonport, who resigned.

Last month Cord took a 60% share in Altergo Ireland, the remaining 40% still being in the hands of ex-Altergo directors.

"Of course we are interested in taking a greater controlling interest in the firm but we don't want to go at it like a bull in a china shop," said Penney.



Saudia airline flight information work for Cord.

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Finance men put £400,000 on Pam

by George Black

VENTURE capital of £400,000 – probably the most backing ever for a British businesswoman in computers – is behind Pamela Geisler's new enterprise.

The ex-Zilog marketing manager is involved in setting up Sphinx, a software marketing company, in Maidenhead, aimed at getting as much as possible of the best Unix and APL systems under one roof.

"We want to assemble a range of products – tools, languages and applications – for the new micros which are going to be most popular," said Geisler.

Talks are going on with a number of fairly new and small companies which are strong on development but weaker on promotion. Geisler sees Sphinx's role as shouldering the marketing responsibility and leaving the systems people free to do what they do best.

Among those taking part in the negotiations are Precision Software, Root Computers, Santa Cruz Operation, Human Computing Resources of Toronto, Dyadic-APL, the National Westminster Bank subsidiary Software Ireland, and Silicon Valley's Yates Ventures.

Geisler spoke of the difficulties of obtaining start-up capital for high technology projects.

"I underestimated – it became quickly obvious that it was going to be much tougher than I anticipated. Many of those I approached made nice noises but weren't interested in being in at the beginning. 'Mortgage your house and get on the road, then come back and talk' – that was the message."

Most financiers only wanted to be connected with conventional, slow-growth concepts, she said. "And one at least didn't like the idea of a female driver."

The possibles were narrowed down to four who had "the right attitude". "I wanted a partner, not just an investor – someone with the American style of no particular rules and a lot of co-operation".

In the end two of them combined to make her an offer – they were the New York-parented Alan Patricof Associates, with considerable high technology schemes on both sides of the Atlantic and Abingworth Management, a wholly UK-owned high risk investment company.

Both were early backers of Apple. APA has recently put its money into Future Computers' British answer to the IBM-PC. Abingworth is linked to Keen Computers, which markets Onyx and Plexus hardware running under Unix.

GEISLER . . . "One financier didn't like the idea of a female driver."

Sphinx starts life with eight staff to be increased to 30 by year-end, according to Geisler.

The main thrust will be towards Unix operating systems and applications. Sphinx has sole rights to Yates products, and sees its Yates' presence in Silicon Valley as crucial to watching the progress of the market. The company is planned to go public within five years; its backer Abingworth is due to go public itself in the near future. There will be no new program-writing, but much effort on adapting products for running on new machines and interfacing with other environments such as CP/M.

Sphinx plans to take on low-end products from the US firms Santa Cruz Operation and HCR, Toronto, which have specialised in Unix systems on DEC equipment.

NCC cuts demand by pushing up fees

VIRGO . . . Hoping to increase cash flow.

by Nuala Moran

THE National Computing Centre's Microsystems Centre is boosting its charges to cut demand. Consultancy fees will go from £290 to £325 per day or £45 to £65 per hour.

Philip Virgo, manager of the centre, said he thought this would ease the problem which the centre has finding consultants capable of giving objective advice. At the same time he is hoping the higher fees will increase cash flow so that the centre can train more consultants. At the moment there are four trainees who will be trained by this autumn.

According to Virgo another effect of the increases will be that people using the consultancy service will do initial research for themselves. The clinic consultancy will now be used to "finalise the short-list of suppliers and selection criteria rather than to answer basic questions well covered in our checklists, publications/packages and directories or which our supervised trainees and secondees can handle equally well," said Virgo.

To support this change the cost of audio tapes has been reduced by 50%. Virgo said these answer most of people's initial queries which they would otherwise address to a consultant. Also, workshop services will continue to be offered free. This allows visitors access to about 1,000 different packages and a dozen machines so that they can see if a particular package will work against their test file.

Demand for the Microsystem Centre's services has continued to grow during the two years since it was set up. In the last financial year, the centre, which is based at New Fetter Lane in London, helped 3,000 visitors to select over 5,000 systems.

Slightly over 50% of the visitors were small businessmen such as painters and decorators or small shopkeepers, wanting to know whether or not it was worth buying a machine.

About 25% were from medium sized businesses choosing between a single machine, network or multi user system. The rest of the centre's visitors were a mixture of managing directors making decisions on company policy, consultants doing their market research, and management services and data processing departments wanting to make bulk purchases.

The centre was set up in April 1981 with funding from the Department of Industry, to provide advice and help to small businesses wishing to start using computers. It does not receive an operating subsidy from the government.

UK firms take Apple CAD to US

by Philip Hunter

A JOINT UK venture has been launched in the US to exploit the huge North American market for graphics design software based on the Apple microcomputer. The aim is to sell Apple-based computer aided design systems developed by the small London-based company Robocom with marketing support from the larger UK-owned electronics company Eurotherm.

The new company will be called Chessell-Robocom, and will at once use the distribution channels already established by Chessell, Eurotherm's operating subsidiary in the US. Eurotherm has also bought a 25% share of Robocom for £150,000, and offered a £100,000 interest free loan to help the smaller company's research and development program.

The formation of the US company has been timed to coincide with the launch of Robocom's next product, the 1000 series of design systems based on Apple II computers. Robocom launched its first product, Version 1, last May, and has so far sold 1,100 systems, 900 in the UK.

"We hope to push our UK sales to 3,000," says managing director Peter Bailey. But the US market is 10 times bigger, with over half the world's 750,000 Apples, he adds.

The system acts as a graphic word processor with the ability to build libraries of drawings, and recompile designs, such as factory layouts, as they are made.

The software, with a hardware controller, costs £445. But Bailey says that the complete turnkey system, with computer and high resolution printer, costing upwards of £4,500, have sold better in the UK.

But in the US, with so many Apple users already, the bigger market is likely to be for the software alone.

BT Pactel link for comms service

by George Black

BRITISH Telecom is going into partnership with systems house Pactel to offer a business communications service to international corporations.

The service is to be masterminded by British Telecom International's Jim Pickard and Pactel's Peter Rooms.

"We'll be looking at users' problems right from one end to the other," said Rooms. "We're trying to fill a gap which BT hasn't particularly attacked in the past and especially not in the international field."

One of the main objectives will be to give big companies a single contact point through which to tackle their communications problems. In the past many of them have had to deal with half a dozen agencies in different countries – "we'll be cutting through the bureaucracy and making things easy for them," said Rooms.

The joint venture – which has yet to be titled – will provide an all-round service, beginning with consultancy and offering both hardware and software.

Rooms said they were already talking to a number of multinational firms about possible contracts.

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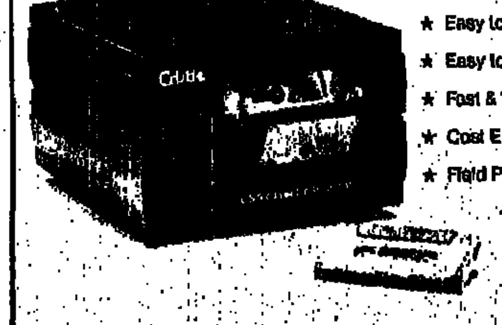

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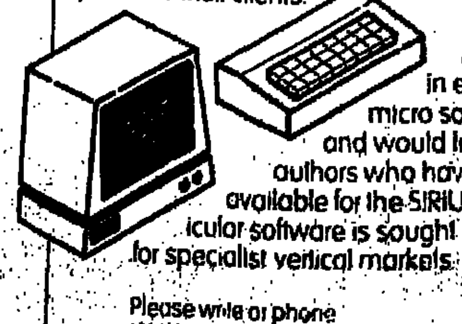

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Wang on target for a bumper year in Britain

by John Riley

WANG UK is well on track for a bumper year, claimed managing director Ian Diery last week. Revenue for the first nine months of the current fiscal year is about 50% up on the same period last year and Diery expects the total revenue for this year to the end of June to be £52 million.

He sees this trend continuing as his office automation strategy moves into top gear. "The race for the desk is on," he explained, "and Wang is well placed to take the lead." Diery believes that the key to success is to get personal computers into offices as quickly as possible.

That is why he has re-organised his selling strategy, has lined up 30 dealers to sell his Professional Computer, and signed an agreement with Peachtree for applications packages to go with them. About 40% of his 600-strong workforce is in customer support engineering.

"We are over the hump in engineering and are in good shape for the next three or four years," said Diery. "Our managers are mature – the top five Wang UK managers all have over five years' experience with the company."

But on the minicomputer side there has been a slowing of Wang's programme to wean users of other manufacturers on to Wang equipment. The company's drive to sign up Digital Equipment OEMs to help with package conversions and its move to snatch IBM System 34 users have both moved more slowly than expected.

Diery has had difficulty finding suitably specialised DEC systems houses for the conversions. "The houses we have signed up are significant with the right specialisation," he said, "but we had hoped to have more lined up. We have been surprised that many of the systems houses we looked at were too general in their approach."

His search began nearly two months ago as part of his strategy to siphon off DEC users to the Wang VS range of minicomputers. So far three to four DEC systems houses have been signed up, but are not being named for the present. "We'd prefer to wait for the software to be converted first," said Diery. The key vertical areas he is concentrating on are insurance broking and banking.

Wang's move to get IBM System 34 users to move over to its VS Series of minicomputers with its System 34 compatible compiler has gone more slowly than hoped. This has been caused by a combination of technical problems, fierce IBM resistance, and a wait-and-see attitude by IBM users. Although it has won 15 full conversions so far, Wang UK has not yet broken into the major multiple CPU user base, such as banks and insurance.

"We have cracked multi-CPU deals in the US," said Diery, "and we are working hard on that front in Britain. Conversion is a complex business because of benchmarking, but we have set up a conversion centre in Isleworth and things are well in hand. We'll see a rash of conversions by September."

There have been technical difficulties, particularly with screen handling. Extra conversion has been needed to provide utilities for converting data files. On the other hand, there have been few problems with batch handling. "Although the screen handling has been difficult, we have had a tremendous hit rate – almost 100% – with our RPG compiler for batch systems," said Reg Broughton, Wang UK's director of marketing support services.

Wang is getting what it considers surprisingly stiff resistance from IBM which is battling to keep its System 34 users.

DIERY . . . "Race for the desk is on – and Wang is well placed to lead"

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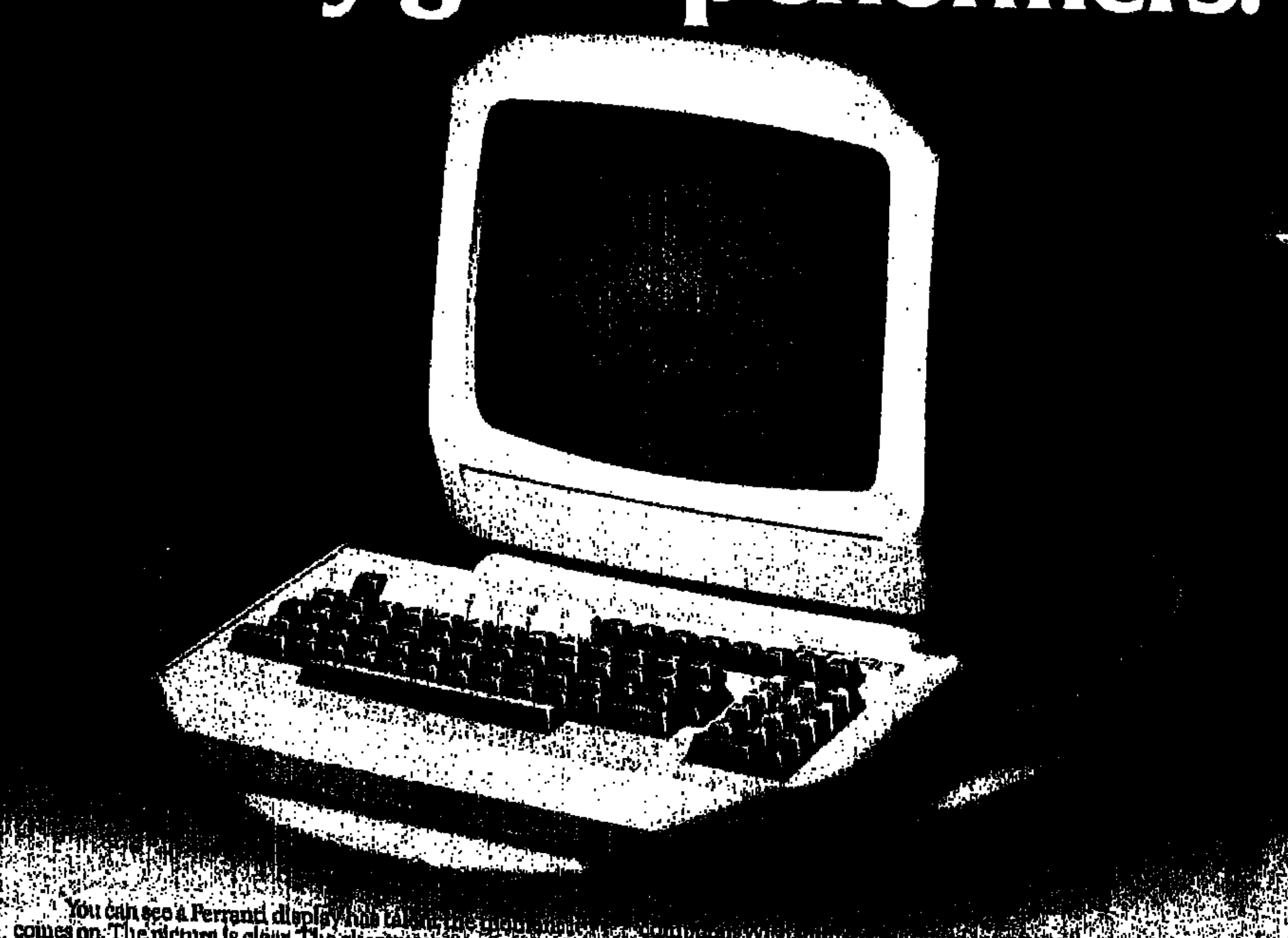

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Reuters aids banks to clear the clutter

by Philip Hunter

BANKS and money dealers can now get at their different sources of computer-based financial information from a single keyboard designed by Reuters, the world news organisation.

The keyboard, with switching equipment, is aimed mainly at dealers who already use Reuters' worldwide communications network for access to various types of financial information such as exchange rates and stock market prices.

"Typically you need one terminal for each activity," says Reuters assistant sales manager Peter Mann. "There may be six or seven services altogether."

The new keyboard will enable the dealer to clear the clutter of hardware on the desk, and control all the data processing from a single workstation. "A user can look at some information, and then switch to an Apple computer to do some calculations," says Mann.

The dealer can also make instant comparisons between current money market rates, and his own forecasts held on an internal database.

Reuters has 34,000 screens installed for its financial monitoring services at banks and dealers in 69 countries. Users of its network can pass information to each other with a guaranteed response time of four seconds.

Reuters has also developed a "calculative datafeed" that allows external data to go straight into an in-house minicomputer or mainframe for calculations.

With the new keyboard, the user can switch from an external service straight into the in-house computer to examine the results of almost instant calculations and statistical analyses of the raw information.

Although Reuters' keyboard is exclusively for financial applications, the principle could equally well be applied whenever quick decisions have to be made from several sources of information. "But we are not interested in opening up a new market," says Mann.

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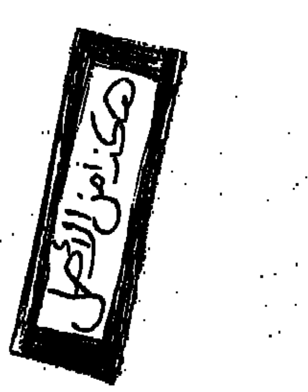

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Wang on target for a bumper year in Britain

by John Riley

WANG UK is well on track for a bumper year, claimed managing director Ian Diery last week. Revenue for the first nine months of the current fiscal year is about 50% up on the same period last year and Diery expects the total revenue for this year to the end of June to be £52 million.

He sees this trend continuing as his office automation strategy moves into top gear. "The race for the desk is on," he explained, "and Wang is well placed to take the lead." Diery believes that the key to success is to get personal computers into offices as quickly as possible.

That is why he has re-organised his selling strategy, has lined up 30 dealers to sell his Professional Computer, and signed an agreement with Peachtree for applications packages to go with them. About 40% of his 600-strong workforce is in customer support engineering.

"We are over the hump in engineering and are in good shape for the next three or four years," said Diery. "Our managers are mature – the top five Wang UK managers all have over five years' experience with the company."

But on the minicomputer side there has been a slowing of Wang's programme to wean users of other manufacturers on to Wang equipment. The company's drive to sign up Digital Equipment OEMs to help with package conversions and its move to snatch IBM System 34 users have both moved more slowly than expected.

Diery has had difficulty finding suitably specialised DEC systems houses for the conversions. "The houses we have signed up are significant with the right specialisation," he said, "but we had hoped to have more lined up. We have been surprised that many of the systems houses we looked at were too general in their approach."

His search began nearly two months ago as part of his strategy to siphon off DEC users to the Wang VS range of minicomputers. So far three to four DEC systems houses have been signed up, but are not being named for the present. "We'd prefer to wait for the software to be converted first," said Diery. The key vertical areas he is concentrating on are insurance broking and banking.

Wang's move to get IBM System 34 users to move over to its VS Series of minicomputers with its System 34 compatible compiler has gone more slowly than hoped. This has been caused by a combination of technical problems, fierce IBM resistance, and a wait-and-see attitude by IBM users. Although it has won 15 full conversions so far, Wang UK has not yet broken into the major multiple CPU user base, such as banks and insurance.

"We have cracked multi-CPU deals in the US," said Diery, "and we are working hard on that front in Britain. Conversion is a complex business because of benchmarking, but we have set up a conversion centre in Isleworth and things are well in hand. We'll see a rash of conversions by September."

There have been technical difficulties, particularly with screen handling. Extra conversion has been needed to provide utilities for converting data files. On the other hand, there have been few problems with batch handling. "Although the screen handling has been difficult, we have had a tremendous hit rate – almost 100% – with our RPG compiler for batch systems," said Reg Broughton, Wang UK's director of marketing support services.

Wang is getting what it considers surprisingly stiff resistance from IBM which is battling to keep its System 34 users.

DIERY . . . "Race for the desk is on – and Wang is well placed to lead."

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FERRANTI
Computer Systems

Reuters aids banks to clear the clutter

by Philip Hunter

BANKS and money dealers can now get at their different sources of computer-based financial information from a single keyboard designed by Reuters, the world news organisation.

The keyboard, with switching equipment, is aimed mainly at dealers who already use Reuters' worldwide communications network for access to various types of financial information such as exchange rates and stock market prices.

"Typically you need one terminal for each activity," says Reuters assistant sales manager Peter Mann. "There may be six or seven services altogether."

The new keyboard will enable the dealer to clear the clutter of hardware on the desk, and control all the data processing from a single workstation. "A user can look at some information, and then switch to an Apple computer to do some calculations," says Mann.

The dealer can also make instant comparisons between current money market rates, and his own forecasts held on an internal database.

Reuters has 34,000 screens installed for its financial monitoring services at banks and dealers in 69 countries. Users of its network can pass information to each other with a guaranteed response time of four seconds.

Reuters has also developed a "calculative datafeed" that allows external data to go straight into an in-house minicomputer or mainframe for calculations.

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COMPANY NEWS

Turnround at former Logabax UK

Cuts bring first profit in years

PRUNING of products and staff has turned a loss of £400,000 in 1981 into a £245,000 profit for former UK subsidiary of French company Logabax in the year ended December 1982.

The management of Logabax UK bought themselves out of the orbit of the French parent in November 1981 and at once set about cutting out loss-making products and shedding the associated staff.

The workforce was eventually cut from 94 to 56, and the 1982 turnover was down to £2.42 million from £3.6 million. But the company is now profitable for the first time in years, and has found fertile ground in developing systems for the legal profession.

The company was renamed Technology for Business after the buy-out by managing director Paul Bion, and fellow directors Chandra Wirasinha and Bryan Senior. And it was in the loss-making small business sector that the pruning was concentrated.

The bespoke software team was cut in its entirety. The other two sections, peripherals and engineering, were left more or less intact, since they were producing a small profit.

"It seemed to me that Logabax was trying to cover too wide a spectrum," said Bion. "We decided to concentrate on what we were good at, and focused on the legal profession."

Bion and the other directors learned from the Logabax experience that it was fatal to concentrate on a single source of hardware. The company now has two main sources for its small business line – Systime and Onyx.

The upmarket product is the TFB 500 series for larger legal practises with between £13,000 and £45,000 to spend on a system. TFB 500 supports up to eight terminals, and is a 16-bit system based on Systime hardware.

The smaller system is the 8-bit single user TFB 100 based on Onyx hardware, which runs up to £12,000. But Bion notes that Onyx offers a bigger machine capable of supporting several terminals, and a small machine can be had from Systime.

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Micro profits more than tripled

MICRO Business Systems has more than tripled its pre-tax profits from £250,000 to £821,000 for the year ended December 1982, on turnover also well up, from £2.6 million to £6.7 million.

The company came to the Unlisted Securities Market to raise £814,000 in November 1982 on a profit forecast of £750,000.

The directors have proposed a dividend of £68,000.

Hot competition

GROWTH of Tandem Computers, the world leader in fault-tolerant hardware, has slowed as competition from IBM, CTL, Status and others heats up. But in the three months ended March 1983, sales were up a satisfactory 30% to $96 million, and profits rose 23% to $10.4 million. The company increased turnover by 60% in its last full trading year ended September 1982. In the previous year the increase was over 90%.

Miles setback

MILES 33, the Berkshire-based maker of computerised typesetting equipment, reports a decline in turnover from £2.2 million to £1.9 million for the year ended February in which it went public. But pre-tax profits were up from £209,000 to £225,000, and the company blames the launch of its new System 300 typesetter for the drop in turnover. The company is paying a dividend of 2p a share.

Sales doubled

US ELECTRONIC giant Gould has increased turnover by over 30% to $1.24 billion for the year ended December 1982. Gould's UK operation has done even better with a 45% increase in turnover, and a doubling of sales over the last two years.

Media price cutting war takes its toll

A PRICE cutting war among makers of magnetic media has slashed profits of System Industries of the US from $381,000 in 1982 to $71,000 for the first quarter ended March. Turnover was up by 21% from $17 million to $21 million.

The company, which makes high performance disc and tape storage systems, also blames increased research and development costs for the profit fall.

Banking boom

TURNOVER doubled to $17 million at US financial software house Hogan Systems for the year ended March 1983. But the net profit increase was even more dramatic from $1.1 million to $3.7 million and the company tripled its share dividend. A boom in the market for banking applications systems in the US was chiefly responsible for the company's success.

Services sale

US INSURANCE group Safeco is to sell 80% of its profitable computer services subsidiary Safecom to other insurance companies. Safeco expects to make $24 million from the sale, an after-tax profit of $0.7 per share.

$4 million profit

PERIPHERALS maker Decision Data has doubled its profits from $2 million to almost $4 million for the year ended December 1982. But this is still only 5% of turnover, which also jumped sharply from $50 million to $7[illegible] million. The company hopes to bring its profits up to 10% by increasing its penetration of the IBM computer peripherals market with a new line of matrix printers, and a communications controller allowing up to nine workstations to be linked to an IBM host.

SHARES TABLE

The shares table, which is specially compiled for Computer Weekly, shows selected computer companies that reflect the state of the computer industry.

Date 20/5/83 | Index 125 19 | Change -[illegible]

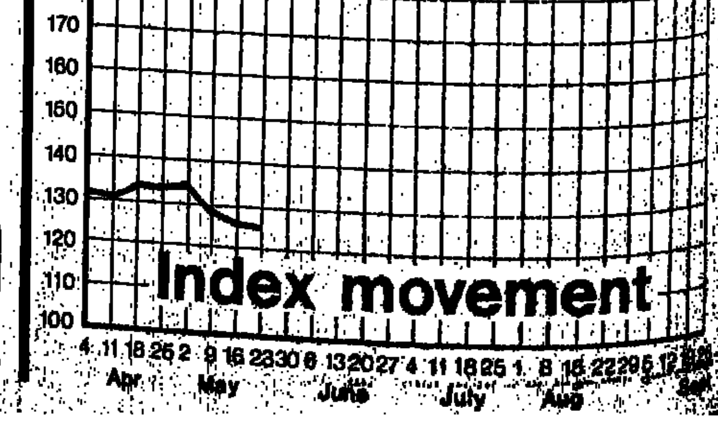
London Stock Exchange

1983 High (pence)	1983 Low (pence)	Stock	Price (pence)	C'nge
409	240	ACT (App Com) (25p)	380	+8
230	178	BOC Intl. (25p)	210	+8
82	41	B. Bay Kent (25p)	82	+11
183	124	Chubb (20p)	167	+1
178	122	Cole Group (25p)	124	+2
725	152	CASE (20p)	183	+8
685	540	De La Rue (25p)	662	+2
323	284	Extel (25p)	307	−3
628	411	Ferranti (50p)	528	+17
247	192	GEC (5p)	222	+8
82	67	ICL (25p)	68	+1
68	41	Kalamazoo (10p)	62	−
370	276	Kode Int (25p)	360	−
445	270	Memec (10p)	445	+20
190	144	Muirhead (25p)	155	+11
646	468	N'market (1981) (50 05)	623	+10
2600	887	Norsk Data	2475	−125
320	210	Office & Elect (25p)	210	−4
1128	710	Philips Lamp (F1 10)	1038	−25
647	535	Plessey (50p)	647	+40
50	32	Quest Auto (10p)	32	−3
684	418	Racal Elect (25p)	497	+33
364	223	Rediffusion (25p)	340	−14
292	226	Star Comp (10p)	230	−
380	275	Systems Des (10p)	375	−3
629	418	Thorn-EMI (25p)	628	+11
177	138	UC&T (50p)	146	−2
		Unlisted Securities Market		
105	75	Bus Comp (10p)	100	−5
218	145	Consult (C&F) (10p)	190	−5
190	168	Int'europe Tech (20p)	178	+3
64	27	J.S.D.Comp (5p)	47	−
235	160	Memory Comp (BR10p)	215	−8
306	206	Micro Bus (10p)	306	+3
272	255	Micro Focus (10p)	272	+7
368	310	Microgen (10p)	340	−
200	135	Miles 33 (10p)	183	..
217	188	NMW (£1)	183	
120	81	Rolfe & Nolan (10p)	97	+1
197	110	ScanData (10p)	170	−3
80	63	Trident Comp (10p)	63	−6
66	65	Zygal Dyn (5p)	60	−1

US Stock

1983 High ($)	1983 Low ($)	Stock	Price ($)	C'nge
50	30¼	Amdahl	48¼	[illegible]
65	29¼	Apple Inc	64	[illegible]
50	34¼	Auto Data Pro	38¾	[illegible]
67	43¼	Burroughs	51	[illegible]
16	11¼	Comp Auto	13½	[illegible]
23	17¼	Comp Sciences	18	[illegible]
12	8½	Comshare	10¾	[illegible]
65½	38¼	Control Data	63½	[illegible]
48¼	37¼	Cray Research	42½	[illegible]
67½	41	Data General	59¾	[illegible]
24½	18¼	Datapoint	20¼	[illegible]
127¼	88½	Digital Equip	108½	[illegible]
65	47	Elec Data Sys	65	[illegible]
12	8¼	Gen Automation	11¼	[illegible]
39½	19¼	Gould	38¼	[illegible]
51	38¼	Harris	42¾	[illegible]
88½	74	Hewlett Packard	84½	[illegible]
122½	86	Honeywell	116½	[illegible]
54¼	40¼	Intel	54½	[illegible]
118¼	95½	IBM	111	[illegible]
69½	54¼	Litton Ind	66	[illegible]
17¾	15¼	MDS (Mohawk D)	14⅝	[illegible]
30¼	19	MSA (Mgmnt Sci)	30	[illegible]
18½	12¼	Mngmnt Assist	15	[illegible]
14½	8½	Modular	13½	[illegible]
118¼	84½	Motorola	115¾	[illegible]
38	26¼	National Semi	38	[illegible]
119¼	87½	NCR	117½	[illegible]
32	24	Perkin-Elmer	27½	[illegible]
44¼	28¼	Prime	29¾	[illegible]
64	44½	Raytheon	51¾	[illegible]
33¼	25¼	Signal	30¾	[illegible]
38½	33½	Sperry Corp	36	[illegible]
24½	19	Storage Tech	22½	[illegible]
31	24¾	Tandem	31	[illegible]
62	50¼	Tandy	60¾	[illegible]
171	133¼	Texas Inst	148½	[illegible]
25	19	Tymshare	22¾	[illegible]
39¼	31½	Wang Lab B	36¾	[illegible]
14	9½	Wyly	14	[illegible]

The table shows the closing prices on Thursday. The Share Index is based on the prices of the UK companies in the table. Highs and Lows have been adjusted where necessary.



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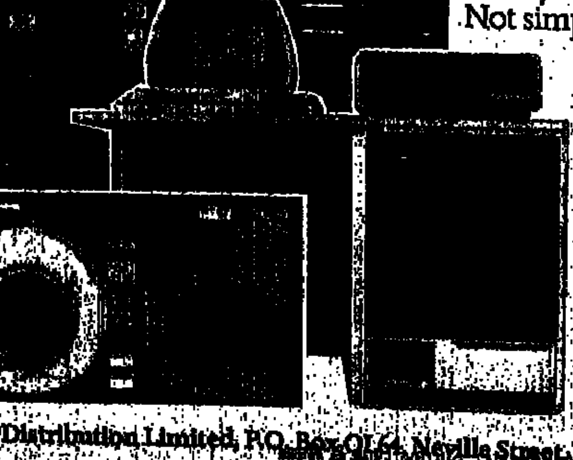

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MICRO NEWS

Retail trade gets Professional help

by George Black

WHAT is claimed to be the first full applications system on DEC's Professional micro was released last week by the Hoskyns Group. The £26 million London systems house has chosen the Mumps language as the basis of its move into turnkey solutions for retailers.

Although retailing is reckoned by economists to be third biggest area for computerisation after the government and banking, to date many retailers know little either of the possible benefits of automation or of what computer systems are available.

Hoskyns' aim is to capitalise on the huge untapped market by using the same software across the complete range of DEC hardware from the little Professional system at under £10,000 to a vast Vax 11/782 complex costing about £500,000.

"This did not give a wide choice of computer languages and Mumps was one of the few that offered the necessary portability," said the firm's marketing director, Richard Holway.

Hoskyns has supplied between 15 and 20 of the major UK retailers with computer systems on a variety of hardware and earns from 10% to 20% of its income from that sector. From its Manchester office the main hardware base has been the ICL 2903 and 2904 mainframes giving complete Cobol systems under the MAS modular applications systems labels.

Among the largest contracts was in 1980 for the Co-op stores. But now Hoskyns has turned to DEC instead of ICL for its new range of packages.

"I don't want to get involved in political arguments, but DEC could give us a complete range of hardware targeted towards what retailers want," said Holway.

He saw the typical end-user as the specialist multiple – the electrical or furniture dealer, for example. The project involved eight to 10 man-years of analysis and programming effort, he estimated. There had been much collaboration with the retail trade, particularly with Blackwell's bookshops.

There was still a great lack of awareness of the systems being developed for vertical markets, he said.

"We sometimes think we have a problem in that no-one has heard of Hoskyns," he said. "But then a recent survey of the general public found that 60% of people thought Digital made watches."

■ Hoskyns will not have the market to itself. Stockport-based Data General OEM Pennine has just launched two turnkey systems, Penwear for the clothing trade and Penmerch for supermarkets.

STREETER. . . . "Offered more money and a new challenge".

New blood at Sinclair distributor

by George Black

PRISM, one of the biggest Sinclair distributors, has strengthened its management team with four new recruits and expects to announce first-year income of over £10 million, it was announced this week.

Sharp Electronics' general manager for systems Paul Streeter has been taken on at the head of the data communications team. Streeter denied that his decision to quit the big Japanese consumer electronics firm was connected with internal reorganisation there.

"I was simply offered more money and a new challenge with Prism," he commented.

Dragon's Tony Brown has joined Prism's distribution operation, which is the Sinclair side of the business.

Dixon's assistant sales director Tony Kauffer becomes merchandising manager for Prism's software products division, in which David Crosweller, from Progressive Distribution, the Seiko agency, will be business manager.

Prism supplies about 350 retailers with Sinclair equipment.

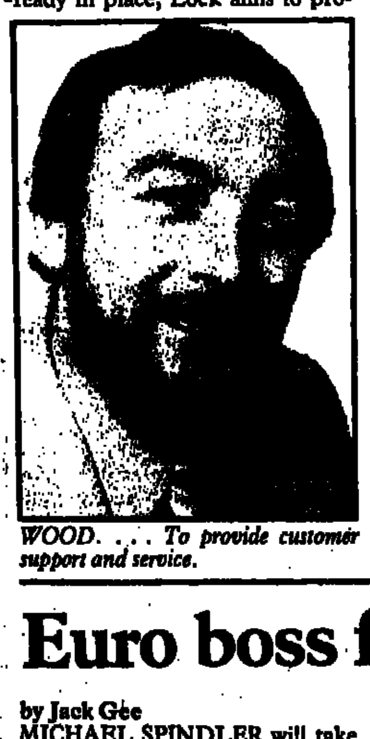
DG distributor for the North named

by Nuala Moran

DATA GENERAL has completed its nationwide network of distributors for microcomputers and related products with Lock Distribution slotting in to cover the North of England. Lock, part of Newey and Eyre Electronic Distributors, of the Tilling Group, joins Celdis and Crellon as DG's industrial electronics distributors in the UK.

The distributorship will stand even if the current City takeover bid for Tilling by BTR is successful.

Lock will supply microcomputer and peripheral products, with software back-up and a variety of options and interface devices. With £175,000 of stock already in place, Lock aims to provide off-the-shelf delivery.



WOOD. . . . To provide customer support and service.

The company has appointed Jerry Wood, formerly of Kratos Analytical Instruments, as applications engineer to provide customer support and service. Maintenance contracts will be taken out with DG.

Commenting on the deal Colin Milner, DG's UK sales manager, explained that the decision to limit the number of distributors was made because DG saw no point in flooding every available dealer with its products.

"We wanted our dealers to be committed because this promotes customer confidence. We don't see Lock as a customer but as an extension of DG," he said.

DG will maintain its direct sales force, which will work in tandem with Lock. Milner explained that DG's sales force was built up for selling systems and does not have experience in the micro market.

"We decided we could not be successful in that market without an industrial distributor".

The three distributors DG has appointed will not be limited geographically, but Milner said he thought practical considerations might limit their range, for example in demonstrating products.

The distributors will work in contact with DG's direct sales force. "There is a defined niche for the distributors and a defined niche for the direct sales force. We will go to great pains to ensure there is no competition between the two."

Lock is one of the largest electronic component distributors in the North.

Euro boss for Apple

by Jack Gee

MICHAEL SPINDLER will take over as Apple Computer's new general manager for Europe from Ken Zerbe on July 4 – American independence day – it was revealed at the company's European headquarters in Paris.

Zerbe, who has been in Europe for one year after serving as Apple's executive vice-president for finance and administration, now becomes vice-president and general manager for intercontinental operations. His area covers the world outside North America and Europe.

Spindler had been European marketing manager and until now director of marketing under Zerbe.

Commenting on Spindler's promotion at Apple's European headquarters in Paris, Phil Roybal, product marketing manager for Europe told *Computer Weekly* "Mike Spindler's appointment is excellent. It's a particularly good move because he speaks three European languages – as well as Basic and Pascal."

The new appointments for Spindler and Zerbe are interpreted at Apple as moves to beef up the company's marketing efforts. Roybal said: "We plan to increase our sales teams by 50% in each European country during the coming year."

OCEANIC

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RENTAL PRICE GUIDE

Manufacturer	Model	Description	List Price	Monthly Rentals 24m	12m	6m	3m
MICROCOMPUTERS							
Intertec	Superbrain II Jr.	Twin 160K discs 64K RAM	1.750	90	105	125	145
	Superbrain II QD	Twin 360K discs 64K RAM	2.050	105	125	150	175
	Superbrain II SuperD	Twin 800K discs 64K RAM	2.315	115	135	165	195
Televideo	TS-802	Twin 370K discs Formatted 64K RAM	2.925	121	151	201	241
	TS-802H	7.5MB hard disc Formatted 64K RAM	5.014	207	258	343	412
	TS-806/20	20MB hard disc 6 user 64K RAM	5.699	313	356	475	570
	TS-816/20	20MB hard disc 16 user 64K RAM	10.199	5[illegible]	637	851	1.020
	TS-800A	Work station for 806/816s	1 380	76	88	115	138
Wangwriter	5503A	Single 360K disc 96K RAM	3.435	169	195	256	324
	5503D	Double 360K disc 96K RAM	3.716	184	212	290	352
	5504S	Single 360K disc 128K RAM	3.435	180	215	286	344
	5504D	Double 360K disc 128K RAM	3.745	206	234	312	375
V.D.U.'S							
Newbury	8002	80 col terminal	505	28	32	42	47
	8003	80 col terminal	595	33	37	47	60
	8007	80 col. terminal 7 page memory	865	43	51	61	82
Data Media	DT80/1	80/132 col. 12" screen	1.130	57	67	80	93
	DT80/114	80/132 col. 14" screen	1.095	55	65	78	90
Colourscan	10	8 colour VT100 compatible	2.150	105	126	152	177
	60	Full colour VT131 compatible	2.275	111	133	161	187
Pericom	7800	VT100 compatible	1.350	74	84	113	135
Televideo	910	80 col terminal	450	26	30	35	40
	925	80 col terminal 2 page memory	635	32	37	45	55
Cifer	2634	80 col terminal 7 page memory	995	43	52	63	84
DEC	VT100	132 col. terminal upg	1 464	55	68	77	92
	VT101	132 col terminal	1.016	38	48	55	63
	VT131	132 col P/Port Adv. Video	1.278	53	64	77	89
DRAFT PRINTERS							
Anadex	9500A	132 col 200 cps	1.215	60	70	85	115
	9501/A	132 col. 200 cps	1.215	67	76	101	122
	9620A	200 cps with graphics	1.295	71	81	108	130
DEC	LA34	30 cps terminal	875	37	43	53	64
	LA38	30 cps pedestal terminal	475	30	33	35	45
	LA120	180 cps pedestal terminal	1.625	85	100	120	140
GE	2030	30 cps terminal	900	45	55	65	75
Newbury	1550	125 cps R.O	600	33	38	48	60
	DRI 8830	180 cps R.O.	1.235	72	81	101	130
	DRI 8910	240 cps R O	1.580	87	99	132	158
OKI	Microline 80	80 cps 80 cols	226	12	14	19	23
	82A	120 cps 80 cols	350	22	26	30	40
	83A	120 cps 136 cols	499	31	35	43	57
	84	200 cps 136 cols.	908	50	57	74	91
Teletype	43	30 cps terminal	650	30	35	45	50
Texas	810	150 cps R.O.	1.200	60	70	85	100
	820	150 cps R O	1.250	63	73	90	103
PORTABLE TERMINALS							
Texas	745	80 col. KSR	1.100	50	60	70	80

Manufacturer	Model	Description	List Price	Monthly Rentals 24m	12m	6m	3m
LETTER QUALITY PRINTERS							
Diablo	620 RO	20 cps	975	54	61	81	98
	630 RO	35 cps	1,670	85	95	105	140
Qume	9/45	45 cps	1 835	94	110	131	154
	9/55	55 cps	2 072	104	123	147	172
	11/40	40 cps	1 377	75	85	111	137
TVI	Telewriter	35 cps	1 699	80	90	100	135
Rellabauser	Cut Sheet Feeders		595	33	37	50	60
BAND PRINTERS							
Data Products	B300	300 lpm printer	3 928	216	245	327	393
	B600	600 lpm printer	4.972	273	311	415	497
	B1000	1000 lpm printer	8.250	464	516	688	825
GRAPHICS DEVICES							
Calcomp	81	A3 8 Pen Plotter	3,350	187	190	219	266
	84	A4 8 Pen Plotter	1 525	84	95	127	153
	951/55	36" Electrostatic Plotter	47 500	2,613	2,969	3,961	4.750
Hewlett Packard	86A	Personal Computer	1,428	79	89	119	143
	2623A	Graphics Terminal	2 989	164	186	249	299
	2647A	Graphics Terminal	7.930	437	496	662	793
	2673A	Graphics Printer	1,749	96	109	146	175
	7221C	A3 8 Pen Plotter	4.327	238	270	361	433
	7470A	A4 2 Pen Plotter	1.221	67	76	102	122
	7580B	A0 Drum Plotter	11,691	643	748	975	1 169
Lexidata	2400	Graphics Terminal	7.920	436	495	661	792
	2410	Colour Graphics Terminal	10.880	598	680	907	1.088
Ramtek	6211	Colour Graphics Terminal	4.800	264	300	401	480
	4100	Colour Graphics Printer	7.200	396	450	600	720
Summagraphics	1111	Bit Pad 11" Tablet	757	42	47	63	76
	1111	ID 11" Tablet	2.205	121	138	184	221
	2020	ID 20" Tablet	2.659	146	166	222	266
	3648	ID 36"/48" Tablet	4 235	233	265	353	424
Tektronix	4025A	Graphics Terminal	4 867	268	304	406	487
	4027A	Colour Graphics Terminal	8.991	494	562	750	899
	4054A	Graphics Computer	12,331	678	771	1 028	1 233
	4112A	Raster Graphics Terminal	4.537	250	283	378	454
	4113A	Colour Graphics Terminal	13,610	749	851	1.135	1 361
	4114A	DVST Graphics Terminal	14 140	780	888	1.183	1.418
	4611	DVST Electrostatic hardcopy unit	3.753	206	235	313	375
	4612	Raster Electrostatic hard copy unit	3.630	209	227	303	363
	4631	DVST photocopy unit	4,714	259	295	393	471
	4632	Raster photocopy unit	4.793	264	299	400	479
	4662	A3 plotter	3.480	191	218	290	348
	4663	A2 plotter	7.569	416	473	631	757
	4907	File Manager	1.979	109	124	165	198
	4909	Multi-user File Manager	18 725	1.030	1.170	1.562	1.873
	4923	Tape Cartridge	2.146	118	134	179	215
	4954	30"/40" Tablet	5 106	281	319	426	511
Versatec	V80	11" Electrostatic plotter	6.312	347	394	526	637
	8236	36" Electrostatic plotter	27,185	1.495	1.699	2.267	2.719
Westward	1015	Graphics Terminal	1 985	99	119	144	194
	2014	Colour Graphics Terminal	4 550	271	269	375	434
	2015	Graphics Terminal	3.750	187	225	271	365
	2019	Graphics Terminal	6 990	349	419	506	681

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PROFILE

BARNES . . . "It must be years since I wrote anything that someone used."

Man behind Ada wants it as a UK standard

"I'D like to write some programs again," mused John Barnes. "It must be years since I wrote anything that someone used – wonder if I could still do it."

This is a startling statement from one of this country's top computer language experts. But it is easily explained – he has spent the last seven years or so co-ordinating the development of Ada, which many think is the language of the future.

A Cambridge University mathematician, he joined ICI in 1961 and spent five years working on numerical analysis. He was based at the company's research centre at Bozedown House in South Oxfordshire.

It was during a summer school at Oxford in 1963, when he met Edinburgh University's Donald Michie, that his imagination was fired by the possibilities of computers.

After that he wrote a program on the Ferranti Argus machine to solve the problems of a chemical plant, and developed SML, the small machine language – "it was like Algol 60 only with parallel processing."

He was behind ICI's biggest contribution to the software world, which was the language RTL2. It began as RTL1, a process control language which was essentially a modernised Coral 66. They tried to persuade the Defence Ministry and British Steel to take it on, but failed, and ICI went it alone.

RTL1 was only used internally. ICI adopted it in Northern Ireland and Holland, but it was seen as a large-machine prototype.

RTL2, the slimmed down version, was an enormous hit, is now used by some 200 sites, mostly on DEC PDP-11 and Vax mainis, and has found its way all over the world. Barnes was head of a team

by George Black

of seven which created it, before the rights were sold to Systems Programmers Ltd in the mid-Seventies.

"I had to leave ICI because the laboratory was closed down and ICI was getting out of software. My job moved to Systems Programmers and I had to go with it. I was naturally a bit nervous about it because ICI was, after all, the biggest firm in Britain; but who were SPL then?"

David Rodway had just set up SPL's research centre at Abingdon and it was here that RTL2's men found their new home.

He was involved with the conception of Ada from its very beginning. "The idea was to develop a language which would stop the proliferation of languages on the market during the Seventies and become the new industry standard," he said. "So I am very glad that it has now been accepted by Ansi. But I don't think it is the ultimate by any means".

He did not think an ideal language could ever be developed because there was so much in the subject that was a matter of opinion or taste. But there was a growing understanding in the industry of what conventions ought to be.

"Software is still a fairly primitive art, but Ada is a step in the right direction and I'd like to see Britain adopting it as a standard."

His next five years are to be devoted to the CHAPSE project – his firm is allying with ICL, SDL and Software Sciences to develop an Ada and Chill environment. He thought the resultant product could be a big money-spinner in the international market.

And after CHAPSE? "Well, I feel a reviving interest in maths – maybe because my elder daughter is becoming keen on it.

"But I don't really think I'd go back to Cambridge to teach maths. I have thought about it, but it isn't really the kind of atmosphere I thrive on. I think I'll be with SPL for a fair while yet."

PLATFORM

Decision-takers must talk the same language

MANY computer companies could help themselves – and their customers – if only they had a clearer approach to decision taking. That is my firm opinion having worked with companies which both sell and buy computer services.

The story of the company which bought computer equipment which didn't quite match its needs is, of course, part of the industry's legend. What has not become quite so clearly studied is *why* companies have bought – or been sold – equipment which did not clearly match their requirements.

There is certainly some blame among computer users for this. Too often they have not identified their needs clearly enough, and as a result, have been unable to explain those needs to suppliers.

But I believe the burden of blame rests equally with suppliers and customers. They are, after all, the experts, and the user cannot be expected to have such a clear grasp of the technical possibilities of equipment as the suppliers who are dealing with it every day.

Part of the problem we have found is that too often computer suppliers prepare a pitch for new business in the wrong way. In case after case, when they get a new prospect the various departments of an equipment supplier will sit down and think what they can bring to bear on that client's business from their own points of view.

The marketing management will look at the problem from a marketing point of view, the sales people from their standpoint, and the systems staff from the ways in which the system can be configured.

The problem is that all these people are speaking different languages – and often have conflicting objectives – and as a result they do not get to the heart of the problem.

Because of this they do not put their organisation or proposals in the best light.

So how can this be overcome?

The way, I believe, is for the supplier to identify his prospects' real problems far more carefully. The supplier's staff in all departments must be trained to look at the customer's problem from his point of view. As indeed the customer must be trained to better appraise his own needs.

By doing this jointly they will be able to analyse better what the customer sees as his problems and

The supplier's staff in all departments must be trained to look at the customer's problem from his point of view. As indeed the customer must be trained to better appraise his own needs

devise a system which puts forward the best solution to his problems.

They need, as a team, to devise the best possible configuration to meet the customer's needs. As a result, suppliers will be showing to best advantage the benefits of their approach to the potential customer's needs.

In order to reach that desirable end, both parties need to pass through several stages. The supplier's role is then to produce two or three alternatives to meet those objectives. The evaluation of these alternatives will determine which is the most effective.

Finally, the supplier organises the proposal to show quite clearly how his chosen approach most effectively meets the client's needs. This structured method of presenting a proposal is becoming a vital ingredient of success, for increasingly there is only a narrow technical advantage between one piece of equipment and another.

Therefore, the way the system is configured and the way it is to meet identified needs is especially important.

Another area in which suppliers need to gain a competitive advantage is after-sales service. Suppliers should consider training their field service engineers in "analytic trouble-shooting" – a technique which enables an engineer to identify trouble quickly and accurately, find the root of the cause, fix it and extend the fix to avoid repetition.

Companies which have adopted this approach have found that engineers have improved their personal problem-solving and planning skills, demonstrated increased confidence in front of customers and enhanced the image of the company.

If suppliers are to adopt this effective approach, they must be prepared to train their staff in the process of decision-taking. The training involves improving the skills of managers in decision-making in their own and their customers' interests.

It is an approach to operational decision-taking which will get suppliers and customers talking a common language – the language of mutual success.

Brian Bentley

Brian Bentley is managing director of Kepner Tregoe UK.

10 YEARS AGO

FROM COMPUTER WEEKLY OF MAY 24, 1973: The government was expected to make a grant of £25 million to ICL for the period up to September 1976 after which the company would aim to be independent of all government support . . . Medlas salaries for data processing managers, according to the latest survey, was £3,016 a year . . . Data Logic announced the introduction of a new bureau service to provide users with "a full applications management service".

DOWNTIME

No! Not another one

IT'S not often that I feel sorry for politicians. Those who want to wield great power are obviously megalomaniac and deserve all they get.

But it was hard not to feel a twinge of sympathy for our very own Ken Baker last week.

Officially declaring a new robotics centre open, he quipped: "This is positively the last plaque to be unveiled in the course of this administration."

The gathered dignitaries laughed politely, but I detected just the barest hint of relief in the Minister's eye as he pulled the ceremonial cord. Does he worry about being reincarnated after the election as official Tory plaque unveiler?

No, I should think he's more worried about coming back as shadow spokesman for kissing babies.

New ways to waste money

VIDEOGAMBLING could be one of the first widespread uses of teletex, declares a well-known US consulting firm. As a bait to get people to use more serious services like teleshopping, the firm proposes in a report as thick as my arm that gambling services be implemented.

"Consumers could receive gambling information on their home television sets, place their bets with a keypad, and then watch the sporting event at home," says the firm.

The great joy is that you will be able to gamble seconds before the event.

The US firm has a name for this network of sin – TelevisIn.

Golden name

THAT repository of all knowledge, the International Directory of Software, takes pride of place (and not a little space) on the desks of the computer industry. Each year, a major software company takes a not inexpensive advertisement on the front cover.

Lovingly embossed in gold on the front of the 1983-84 edition is the name of just such a company.

The name of the company?

Altergo.

Moon man checks on Nostradamus

PROPHETS and astrologers are allowed to get away with their arrant nonsense because nobody who believes in them is too interested in checking the accuracy of their predictions. And non-believers have better things to do.

The predicitions of 16th century French astrologer Nostradamus have certainly been given remarkable freedom from rigour. He has been credited with predicting the catastrophes of Marx and Hitler, but unaccountably missed the development of IBM system software.

All of Nostradamus' predictions place events against an astronomical clock based on the alignment of the planets, and not against our calendar. Yet no one had bothered to calculate accurately when these alignments occurred, many people being all too happy, as I hinted, to indulge in fairy tales.

But now an astronomer, who was head of communications for the Apollo moon programme, has run the predictions of Nostradamus through a computer. He has published a book in France entitled *La Fin du Monde*.

And some of the news is good. The world will not after all end in 1999, but in 3797, giving us another 1,814 years of civilisation.

Just as well because I have another 986 years to run on the lease for my house.

A shocking thing to do in the bath

WHAT could be more relaxing after a hard day at the office than a soothing hot bath? Micro manufacturer Epson would have us believe that relaxing in a bath while working on one of their dinky little microt is, if its colour supplement ads are anything to go by.

You will be pleased to learn that the Advertising Standards Authority has decreed the Epson safe for use in the bath. The ruling follows a complaint that the electrical what-nots inside the micro might blow an executive to pieces as he fumbled for the soap and grabbed the micro instead.

But the ASA says the only risk involved is if the machine should fall into the bath while connected to the mains.

Don't be a noisy eater

ON the wall of the conference room at IBM's Wigmore Street offices is a sign which warns employees of the dangers of loose talk. "WARNING. THIS ROOM IS NOT SOUNDPROOFED" it shouts.

Industrial spies can walk the corridors in vain, for no IBM employee would dare spill the beans about the forthcoming scrapping of MVS/XA in an unsoundproofed room.

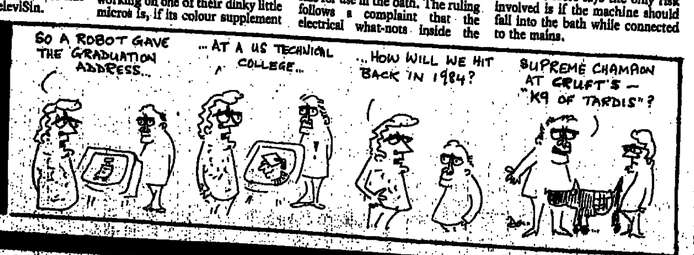
No such sign is affixed to the canteen wall, however, so the spies gathered together for a consoling cup of tea may well discover what they are after from lunching executives.

But perhaps IBM employees are too well trained to talk with their mouths full.

Chad

Liveware File

by Don



ComputerWeekly

Quadrant House, The Quadrant, Sutton, Surrey SM2 5AS

Thursday, May 26, 1983

Alvey chief takes industry to battle

BRIAN OAKLEY, the man who will direct the Alvey Programme, is not one to mince words. It is economic war, he said, and if the UK does not stop bickering the promise of information technology will not be fulfilled.

Oakley clearly understands that his new position will place him on a very sticky wicket. "I will be expected to walk on water," he told a group gathered in London last week to inaugurate the SPL-Insight study group on Japan's fifth generation project.

It was expected that the person chosen to head the Alvey Programme would be a well-known industrialist. We called for just such a person on these pages when the Alvey report was first released. Another civil servant worn down by the demands of bureaucracy did not bode well for the success of Alvey.

Yet meeting Oakley dispels most of the doubts. He was even able to joke about the fact that he was not that well-known industrialist everyone hoped for. Modesty mixed with a realistic appreciation of the difficulties to be faced is a combination that takes Oakley above the average civil servant.

It is possible that once Oakley moves from the rural surrounds of the Scientific and Engineering Research Council in Swindon to the grey corridors of the Department of Industry he will lose something of his openness. He promises a small, unbureaucratic directorate, with an open door policy.

If he succeeds in that there will be one island of government unlike any other.

Real support from industry, as well as government and academia, is essential if Alvey is to become more than a talking point.

Oakley expects a hard fight to make Alvey work. Now is the time for industry to give him its unreserved backing.

War of awareness

THE American computer Press calls the National Computer Conference, which has just ended at Anaheim in California, the biggest computer show in the world.

It isn't. The computer section at the Hanover Fair has twice the number of exhibits and 30% more visitors.

What the Americans might more accurately have done is claim that the NCC is the most important computer show in the world, and not just because it suffers from the blessing of hype.

It is held with tremendous elan and pizazz, to use an acutely American phrase, in the world's biggest market for the sale, and indeed production of computers.

And that's the rub. To get the kind of take-off of an Apple or an Atari, you have to start in America.

It was sad, therefore, to note an absent ICL which, according to its directors, is making major strides in America. Nixdorf of Germany, which now claims to be Europe's number two independent computer company after ICL, and which is about the same size in the US as ICL, was there with a splendid stand – and 30 European editors to ensure that Europe heard that Nixdorf was at the NCC.

Showing the flag for Britain was largely left to a group of the small and newer companies under the aegis of the Business Equipment Trade Association.

Rair was there, and Torch, and with news of a big US deal in the wind so was Future Technology Systems.

But perhaps the bravest appearance of all was made by UK stock market newcomer Micro Focus, which had two well positioned and enthusiastically manned stands at the NCC.

That said, there was still a touch of the "thin red line" about the UK's presence, It was as though we still haven't quite grasped either the significance of the American computer market and a presence in it, or the significance of going to where the whole world goes to see the computer industry.

Without that perception there is little chance the UK will ever win that vital war of awareness.

1984 and all that . . .

THIS week's example of the strange things people say about computers was sent in by Andrea Ellis, of London, who wins £5.

Computers will soon outstrip humans in the same way as humans have outstripped apes. In a few decades they will be creating arts whose beauty is lost on us and sciences whose meaning is beyond our comprehension.

Radio Times

LETTERS

Software houses slur

I HAVE seen a number of items in the computer Press quoting the self-styled SSP expert Michael Colestone of Information Management Services, including your Workplace (*Computer Weekly*, May 12), as saying that many computer systems for SSP are suspect.

I think it pertinent to point out that the test criteria used by IMS was supplied by Industrial Relations Briefing which has a close interest in MicroSSP produced by CMG. While not disputing the problems of SSP quoted in the items, I consider that the potential blanket slur on software houses should be questioned.

While the conception of the CMG systems seems good, there are other systems which grasp the problem and succeed. IMS does not have a monopoly on SSP knowledge nor does IRB.

Incidentally, the problem of the eight-week average is not solved by extending to 12 weeks. It is necessary to keep a record of each average taken and then refer to the figure applicable to the "relevant date" of the PIW being processed. In the case of a disputed PIW requiring an insurance officer or tribunal decision this could be anything up to a year in the past.

As an ex-employee of the DHSS whose understanding of SSP has been vetted by the Department, I should be happy to offer an unbiased opinion to any company producing SSP software. We ourselves have produced an SSP calculator but the market is big enough for all. I am only concerned that the legislation is correctly interpreted – a legacy perhaps from my DHSS days! IBM, Geest Computers and Gordon and Gotch were all appreciative of my suggestions – even CMG took note!

YOLANDE SMITH
Shumwari Associates
Marlow, Bucks

Video-based storage

I READ with some concern the article "Video-based storage on the way from Marconi" (*Computer Weekly*, May 5). It was written about a lecture that I gave to the IBM Computer Users' Association and has unfortunately several errors in it.

The device that we have now produced works in conjunction with standard video tape equipment and not with video disc, as suggested in the article. We are thinking of video disc, but we have to walk before we run.

This device we are working on is capable of storing 10 to 11 bits of information digitally on a one-hour video tape. Without any error in coding we currently have a drop-out rate of 1 in 10. The system is flexible and can handle a wide range of data rates.

It is therefore a very important addition to image processing facilities where large amounts of data are required to be accessed by scientists in conjunction with their scientific studies.

The states can be rectified and further information on the device may be obtained directly from myself.

GARRY E. HUNT
Director, Centre for Remote Sensing
Imperial College of Science and Technology
London SW7

Dispute was with ITT

YOUR Racal and Rixon piece (Computer Weekly April 2), contained an inaccurate and misleading footnote about Format Communications and STC.

Format Communications was, in fact, in dispute with ITT Commercial Cable Company over the 900 ADX – not with STC.

ITT Commercial Cable Company is part of ITT and is not part of STC. You will appreciate, therefore, that your report is incorrect.

BOB HARRAP
Public Relations Manager
STC Business Systems
Hollingbury
Brighton.

Technological confusion

YOUR front page article (*Computer Weekly*, April 21) illustrates the computer world's latest bit of technological confusion.

We gather that Nixdorf has announced "the world's first commercially available artificial intelligence system".

Extremely thin on the ground as such products may be, in fact a real AI product has been available for a number of years in the US: Intellect, a natural language query system from Artificial Intelligence Corporation.

DAVID FERRIS
San Francisco

Wrong writer

WITH reference to the article Why Unix has become the industry's big talking point (*Computer Weekly*, May 12) we should like to point out that this article has been attributed to the wrong author.

The name of the correct author is Mick Bailey, who had put a considerable amount of effort and research into the article. I would appreciate it if you could apologise to him.

MIKE BRINSFORD
Marketing director
Data Logic
London NW2
Editor's note: Our apologies!

Guild of Practitioners

I AM writing about some of the errors (*Computer Weekly*, May 12) reported in your article "New guilds after young members". I assume you mean the National Computing Centre when you mention the National Computing Council and it would perhaps have been better and more correct if your reporter had quoted Patrick Raymont, the manager of the NCC's Education and Training Strategy Group, who was present at the launching of the Guild, rather than George Penny who was not, because Raymont warmly welcomed the arrival of the Guild and its aims and objectives.

Finally I have confirmed with Penny that I have not written or spoken to him that, "we are co-operating with the Council in training"; nor have I made the comment to anyone else.

I would be grateful if you would publish this correction.

D. C. RICHARDSON
Secretary General
The Guild of Computer Practitioners
London NW1

'A serious competitor'

I WOULD like to refer to the article by Philip Hunter (*Computer Weekly*, May 19) regarding the Profile of Floating Point Systems. He states that FPS has no serious competitor.

I would dispute this statement as the UK distributor for CSPI.

CSPI has an extensive range of array processors starting with the recently released Mini Map which is a 7 MFlop AP through to the MAP 400 which operates at 24 MFlops. All these are 32-bit, and for 64-bit accuracy there is the MAP 6400.

With sales of over $10m a year and rapidly increasing I would consider that FPS does have a serious competitor.

K. G. NOCK
Manager, CSPI Products
Electronic Associates
Burgess Hill
West Sussex

A funny thing . . .

I AM in the process of preparing some material relating to the uses and abuses of microcomputers generally and to the crazy things they say in microcomputer manuals specifically. If any of your readers has a relevant funny story or can point to specific instances of gobbledygook in manuals I'd be delighted to hear from them.

MICHAEL THORNE
University College
Cardiff

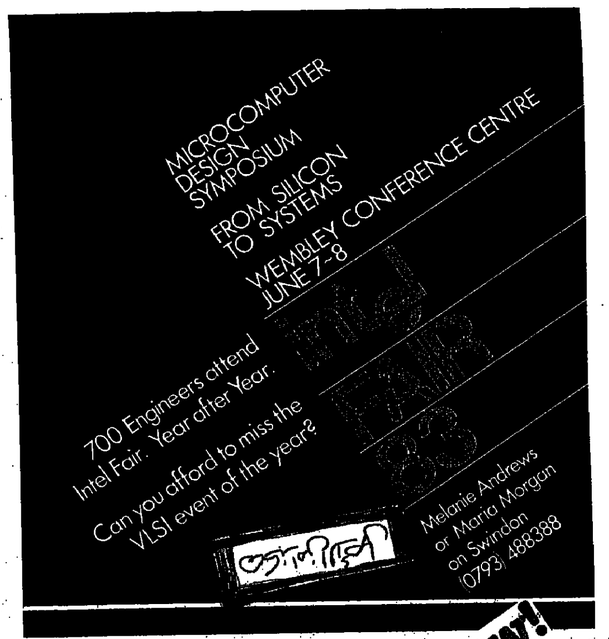
The Editor welcomes letters commenting on subjects published in Computer Weekly, or on original topics. All letters must be accompanied by the writer's name and address, not necessarily for publication. Letters may be cut.

Misleading

YOUR headline "Olivetti boss sees first slide in profits" (*Computer Weekly*, May 12), is totally misleading. Our group net profits are in fact up by over 7%, which hardly represents a "slide in profits".

The ratio of profits to turnover is lower, as you correctly state, but this fact has been misinterpreted by the writer in this headline.

DAVID MARONI
Director of External Relations
Olivetti
London SW15



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Tops 'just the job' for first lady

ATHERTON . . . "No discrimination against first woman."

LAST September Jane Atherton became the first woman to take a Tops computer technology course at the Control Data Institute in Manchester. Six months later she finished the course, and walked straight into a job as microcomputer maintenance engineer at Unilever subsidiary UCSL Microsystems.

Atherton dismisses as myth the common belief that a Tops course is just a holiday from the dole queue.

"Six got jobs before the course ended," she says. And several others among the remaining 12 have since been placed.

The Tops training was ideal preparation for the job, maintains Atherton – especially the electronics part.

"I had extensive knowledge of computing as an operator," she says. Atherton spent four years in operations at the Science and Engineering Research Council, Daresbury, on IBM and Cray machines, after taking an HNC in computer studies.

So why the Tops course? "I wanted to change to engineering," she replies. Having discovered a marked distaste for programming, except at the machine level, hardware maintenance was the obvious avenue.

She has so far sailed through her work on microcomputers at UCSL. "But I have only had the easier jobs so far," she says – mainly printer problems.

"It is most often the mechanical things like printers and disc drives that go wrong," says Atherton.

She felt no discrimination against her as the first woman on the course. "I don't think women are given enough encouragement to do this sort of thing.

"Certainly, when I was at school this kind of activity was never suggested. But during the course I felt no discrimination, I am sure I was treated the same as everyone else."

She believes she owes her job to the efforts of Control Data through its policy of inviting companies to interview Tops candidates during the course.

Consultant's Casebook

Get a second opinion on those estimates

A COMPUTER department's credibility suffers severely when it overruns project cost and time estimates. Future developments may be placed in jeopardy if users have no confidence in the estimates they receive.

The head of information services of a well-known insurance company had asked us to perform a review of his department's project estimating methods. He had had two nasty scares in the recent past, and wanted to avoid any repeat performances. Furthermore he had detected dark mutterings around the company, doubting the wisdom of using his services – users were fed up with the late overrun projects.

It's difficult to imagine an insurance company operating today *without* the use of sophisticated computing technology. And this company was no exception. It ran an installation of sizeable ICL 2900s at headquarters, linked to an extensive network of RJE terminals in branch offices around the country. The mainframe site boasted an impressive array of technology, and the latest database and online development bells and whistles.

So why was the department so bad at estimating development costs and timescales?

A new development for the automatic generation of renewal notices for its car insurance business had just been delivered. While the development was installed on time, the final bill was 210% of the original estimate!

A replacement system for house and home contents insurance business had been scheduled for delivery that month. The implementation had been postponed for five months, and the original cost estimate increased by nearly half. Since this project was already a six-figure development, and critical to the department's plans for expansion, the information services function was quickly losing friends.

We found that the fundamental problem was related to the point at which estimates were prepared and firmed-up.

The company quite rightly insisted on value for money from its computing function. It therefore required a clear definition of potential costs and benefits before embarking on any major new development. So far, so good.

What tended to happen, however, was that a great deal of estimating effort went into the initial feasibility or pre-feasibility phases of the project. These phases would often include very detailed project cost analysis and evaluation. Thereafter, however, these estimates were not subject to regular critical review – only at post-implementation time.

In analysing the information services department's performance on a further half-dozen major projects, excluding the two most recent horror stories, we found a similar pattern of poor estimates. It was just unfortunate that the renewal notice system and the house and home contents system happened to hit the headlines simultaneously.

Projects were generally delivered two to three months late, and with an average cost overrun of 35%.

Our major recommendation was that the department should link its estimation process to each of the established checkpoints within the development cycle. It should give a firm quote for the work, cost and time of the phase about to be undertaken (analysis, design, construction, etc). It should at the same time give an up-to-date estimate of the cost and time involved in the totality of the project.

There was clearly also an education programme to be mounted for the user organisations. Both the budget overruns brought to our attention had been caused primarily by changes to the original project specifications. In the case of the renewal notice system these user changes had been extensive and very late in the day.

So users had to be made more aware of *their* responsibility in this development process. System changes requested by them would have to be costed and approved by a project manager on a case-by-case basis.

Otherwise the computing people would contract to deliver as set out in the various checkpoint documents prepared throughout the cycle.

Further, we recommended the establishment of estimate review circles, within the information services department. There is nothing like a fresh pair of eyes from an objective observer to find potential faults in even the most rigorously detailed project estimates. Project leaders should present the next phase estimates and total project timetables and costs to a body of peers, prior to managerial scrutiny and publication.

Our recommendations were willingly accepted by the information services function. It took a little longer to persuade the user departments, who suspected that IS might be trying to pull a fast one.

The head of information services ran a couple of user seminars to explain his system development guidelines, and the points at which estimates would in future be prepared and updated. This commonsense approach has paid dividends, as the users, for the first time, have begun to appreciate the intricacies of computer systems development and project cost estimation.

Workplace is compiled by Philip Hunter

An occasional series by John Simpson

PUZZLER

THIS 4 x 4 magic square (in which the numbers 1 to 16 have been replaced by letters selected in random order) is "diabolic".

What this term means is that: (a) All four horizontals, like GCHB, all four verticals, like EBOI, and the two long diagonals, each sum to the magic constant of 34; (b) all subsidiary groups of cells, such as AMNL, CFPM and HBOP, also sum to 34; and (c) the square will remain diabolic even if a row of four figures is shifted from top to bottom or bottom to top, or if a column of four figures is shifted from one side to the other.

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G	C	H	B
A	M	P	O
L	N	D	I

Can you construct such a square, before turning to page 62 for the solution?

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TELECOMS

Britain's beleaguered private telecoms network faces a hard battle if the Tories return to power, says Della Bradshaw

Why Mercury's deadlines are slipping away

Mercury fails to take wing – despite the telecoms experience of chief executive Derek Evans (centre), technical director Peter Cott (right) and sales director Stuart Bailey.

IN February 1982 the government made its most drastic move in an attempt to liberalise the telecommunications industry in Britain. It granted a licence to Mercury Communications, the first private telecommunications service in Europe.

The aim of Mercury was simple: to cream off the top 300 or so companies from British Telecom's customer list. The government was aiming for a viable, if not successful, alternative communications system to British Telecom before the election.

But although the aims were simple the execution has certainly not been so. As well as technical problems Mercury has faced union opposition, legal wranglings and an unexpectedly aggressive British Telecom, as well as a rather embarrassing lack of customers.

The new firm's credentials include the telecommunications experience of chief executive Derek Evans and technical director Peter Cott, both of whom joined from parent company Cable & Wireless, and the computer services experience of sales director Stuart Bailey, who joined last year from the world's largest teleprocessing network operator, Geisco.

Evans also boasts the balanced background of service with the UK's only other public network operators, British Telecom and Hull City telecommunications department.

But to date the three owners of Mercury – British Petroleum, Cable and Wireless and Barclays Merchant Bank – have put £60 million into the venture, and have seen most of their deadlines for the company slipping away.

The first London service should have been operational in April, using microwave point-to-point dedicated links between customers. That service has already started between some customers, but of the five dishes and nodes necessary to operate the system in the London area only one is in place, on Britannic House in Moor Lane, the headquarters of British Petroleum.

Then comes the problem of interconnecting the service into the BT network. The initial interconnect that Mercury and BT have agreed is for a level one connection between the main network and the PABX in Mercury's Longacre office. That connection, similar to the private connections between large offices in the same firm, will have to be made by BT. The Post Office Engineering Union's militant London North Central branch, which covers the Longacre site, has said if will not make that connection.

The POEU has been waiting more than two months for the instruction to make the connection, but the hold-up appears to be on Mercury's side, not BT's, and the problem appears to be with the PABX. According to a Mercury spokesman "connecting the Mercury lines to the PABX is obviously not as simple as connecting an ordinary PABX up, and we have run into a technical delay. We're now waiting for some printed circuit boards to arrive, and when that happens we assume we will be connected."

Once all that is sorted out Mercury has to organise its trunk network. At the beginning of April the company invited tenders for a £20 million contract to supply and install a non-mode optical fibre trunk network. That enquiry was for 630 kilometres of fibre for an initial network that should be in place by the end of 1984.

The network will be in a "figure of three," including London, Birmingham, Leeds, Manchester and Bristol. The missing links between Bristol and Birmingham and Birmingham and the North-east will be supplied by microwave. The full "figure of eight" network should be completed by the end of 1985.

It is not clear when the order will be placed or when the work will begin on the trunk network, but Mercury says it has told potential suppliers that it is "a matter of some urgency."

Once the order is placed Mercury still has to complete negotiations with the British Railways Board for the use of BR wayleaves to carry the cables. Negotiations there have been held up by the Inland Revenue, over the land development tax. Any landowner making profits out of his land gets taxed on it, but to date no-one has determined whether that law is applicable to wayleaves.

If it is applicable, the implications for the cabling of the UK, as laid down by the recent White Paper on cable television, are enormous.

The implications for Mercury could be vital, too: if British Rail becomes liable for the tax then it would pass the expense on to Mercury. How much that tax could be is a matter of pure guesswork, but it could have a distinct influence on any future plans Mercury makes regarding laying cables.

British Rail is, needless to say, enthusiastic about the possibilities of renting out the wayleaves to Mercury – it made a loss of £174 million last year. Once the wayleaves are put to use by Mercury then comes the problem of who actually maintains the cables.

The National Union of Railwaymen (NUR) has what it calls a "two-pronged attack" – firstly it agrees with the TUC and the POEU in objecting to Mercury *per se*, but as a union spokesman put it: "If Mercury cables are laid on British Rail property then we want to do the maintenance."

The next problem for Mercury is to make the local links, between the Mercury network and the customers' offices, at some sort of reasonable price: Mercury is already spending about £20 million for the installation of a 1,000 kilometre trunk network, and local lines are considerably more expensive. In the long term it looks as if the cable television White Paper has given Mercury its first break, as it gives BT and Mercury exclusive rights to provide voice telephony services on local cable systems.

That could mean Mercury will get a local telephone network on the cheap – the cable operators will stand the finance for the ducts and initial cabling and give Mercury access to an almost ready-made system.

If the White Paper does become law as it stands that could give Mercury a local telephone network by about 1986 at the earliest.

But in the meantime Mercury still has to find some way of making the local links in its network. The simplest way of doing that would be to lease lines from BT, its only competitor.

Another option would be to lease ducts in the ground from other types of companies, such as London Transport. The communications company has already reached some sort of agreement to use the Circle Line of the Underground to carry cables, and is certainly looking at other options, such as the old tram lines in London.

Then there are the international lines. The Littlechild Report, published in February, recommended that Mercury should compete on an equal footing with BT in providing international services. To date Mercury's moves towards an international link have involved placing an order for one Type C earthstation with Marconi, which is intended to connect Mercury's UK customers to business centres in North America by 1984.

The earthstation is to be in the London Docklands area, and Mercury has submitted outline plans to the Port of London Authority.

Mercury's hardest battle could come if the present government is returned at the June 9 election. That could herald the beginning of more competition for Mercury in the form of licences for several more private telecommunications carriers

However, even if Mercury can get the whole thing together and operational by 1984 it still has to complete negotiations for the use of international satellites. Those negotiations are ongoing at the moment between Mercury and, needless to say BT.

Once all the technical and legal problems are solved Mercury still has to face basic commercial problems. The first of these is its one competitor, BT, which, since the formation of Mercury, has surprised everyone with its sudden flurry of business services – KiloStream and MegaStream, Packet Switched Systems and its more recent collaboration with Pactel to provide an international consultancy service for international customers are but a few. BT's National Networks is also installing digital services over an area far greater than Mercury's network.

Mercury's original aim to provide high volume voice and data connections for large organisations pales in comparison.

So far Mercury has been totally non-committal about how many customers there are actually signed up. Estimates range from two to a dozen or so. Should the worst come to the worst the government could pressurise both government departments and nationalised industries into taking up the private network. Both are thought to have happened.

But the main problem appears to be that there are simply not enough companies which want the sort of service that Mercury offers. At a rough estimate the requirement for dedicated lines is less than 4% of the £5 billion UK telecommunications network business, and not all those are in the London area.

Many customers are also probably waiting until Mercury is connected to BT via a third level connection, which will give access through the public network into and out of the private network. That will not be available until 1985 at the earliest.

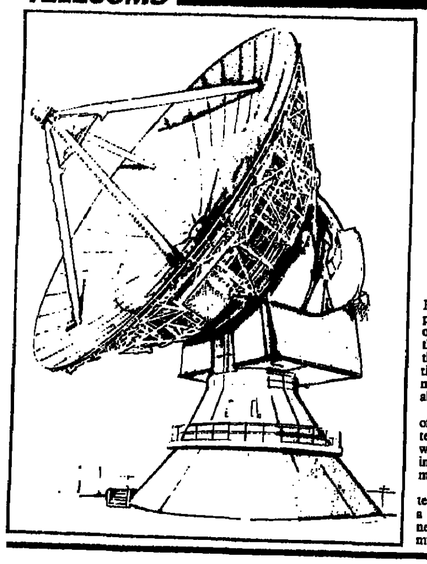
Until that time the connections will only be through leased lines.

Another problem for Mercury is a geographical one. The proposed trunk network goes no further North than Leeds, which cuts off a lot of companies, particularly those in the North-east. If Mercury is aiming for the top companies then it has to go for government offices – the government spends over £200 million a year on telecommunications. But several of the biggest government departments, notably the Driving Licence Centre in Swansea, are outside the proposed Mercury network.

One area in which Mercury looks like having some commercial success is cable television. It has already signed a non-exclusive agreement with Thorn EMI to use the Mercury trunk network for moving EMI's programmes around for the use of local cable operators. That could be the first of many agreements, as only Mercury and BT have the authority to interconnect local cable television networks.

That said, there is no doubt it is going to be an uphill struggle for the private network. The three companies, Cable and Wireless, Barclays Merchant Bank and BP, are committed to an investment of £250 million over the next five years, and returns from that, as with all telecommunications-related projects, will be some time in coming.

But Mercury's hardest battle could come if the present government is returned at the June 9 election. That could herald the beginning of more competition for Mercury in the form of licences for several more private telecommunications carriers.



Changing face of th American skyline

The telecommunications business is in a state of flux throughout the United States . . . Howard Karten reports the latest developments

FOR many years, one of the prominent features in the skyline of major American cities has been the veritable forest of antennae on the roofs. The latest addition are the 10-, five-, and even three-meter receiving dishes, aimed just above the horizon.

The dishes are the outward signs of significant inner change in the telecommunications business, and will no doubt propagate at a growing pace in coming years and months.

Predicting the future of telecoms in the US these days is a tricky venture. The entire business is in a state of flux, caused as much by changes in the regulatory and political environments as by technological advances.

Unlike the mainstream computer industry, it's even uncertain whether real data communication costs are slowly rising or slowly falling.

A hot topic of public debate these days is whether the impending break-up of AT&T into a long-distance connection company and separate local service providers, will force local bills up or not.

The general consensus is that phone bills will rise, since a good deal of the cost of data communications systems is in the "last mile" – the cost of the local loop, as well as the concentrators, multiplexers, and other hardware at the sending and receiving ends could raise rates significantly.

Until recently, Management Information Systems *(MIS) directors* have had few real alternatives to choose from in data communications. But as costs go up and competition develops, heavy data communication shops can be expected to turn a sharper eye towards alternatives and cost-cutting methods.

It is also safe to say that despite its mammoth size – dwarfing most other American companies in number of employees, book value, revenues, earnings, and so on – AT&T by no means has a lock on the future.

Some facts of data communications life are obvious. More and more, the trend is to transmit information of all kinds digitally Thus, conversion of television and audio signals into digital is increasing, more and more vendors are coming out with digital PBXs, new factories and offices are being wired for data communication, and so on.

Equally obvious is that X.25 has become the *de facto* standard for *data communications*. Virtually every America major hardware vendor has supported X.25 for some time, with IBM coming into the fold fairly recently.

However, the media or method by which X.25 will be transmitted seems poised on the edge of a major change. There are signs that the telephone company may lose its traditional monopoly on supplying the local loop which has hitherto been the only doorway into the national telephone system.

The company or companies that will emerge as market leaders remain to be determined.

Currently three names emerge as pre-eminent in packet switching, GTE Telenet, a subsidiary of Greenwich, Connecticut-based GTE (formerly General Telephone and Electronics), and Tymnet, a subsidiary of Cupertino, California-based Tymshare, are the two firms operating the largest public packet-switched networks.

Bolt, Beranek and Newman communications company, which designed Arpanet, the world's first packet switching network (and which still has a strong hand in running and enhancing Arpanet), is a leader in communications consulting and setting up communications networks for companies and government.

"Things have got incredibly confusing because of deregulation and divestiture (of the local AT&T operating companies), and the number of options has opened up enormously," notes John McQuillan, president of McQuillan Consulting in Cambridge, Massachusetts, and former president of Bolt Beranek and Newman informatics management company, a subsidiary of BB&N in Cambridge.

"I expect that the number of entrants in the business will grow rapidly this year and next," he says.

Telenet and Tymnet have been operating for nearly a decade but it is only in the past year or that Telenet has begun to show profit, despite the fact that two *major time-sharing companies* as information providers, such as database vendors, have been hooked up to Telenet for some time.

In addition, in the past year Telenet appears to have been moving more aggressively to promote itself and to create a need for its service. It is currently accessible *from more than 200* cities via local phone call, and plans to extend the number soon.

Telenet has recently signed some major accounts – one of them IBM, for its IBM Information Network – and appears poised for major growth, following a start-up period during which few, if any, vendors have made money at the public packet switching game.

Telenet and Tymnet also sell private packet-switched networks for *large users to seek increased* privacy over the public networks run by these carriers. Tymnet, smaller than Telenet and much more a captive of parent company Tymshare, maintains a low profile.

Both firms, as well as other smaller public value-added networks, might understandably be *nervous these days, with the unregulated* AT&T public VAN (Value Added Network) offering, AIS/NET 1000, running hard to catch up. AIS/NET 1000 will be the first service to be offered by American Bell, the unregulated AT&T subsidiary.

In addition to carrying data between two or more points, AIS/NET 1000 will also perform some processing of that data, ranging from mere protocol translation to full-scale data massaging in applications such as order entry, inventory, and so on.

Officials of Telenet, Tymnet, and the others tend to put a brave face on their public appearances.

This may or may not be merely whistling in the dark. On the one hand, AT&T employees are used to moving at a more stately pace, finding new ways to use (and to sell) older, more familiar technology. This could put AT&T at a disadvantage as its salesforce attempt to compete with Telenet and Tymnet. Additionally, Telenet and Tymnet have a deeper reservoir of experience in running

■ Continued on page 19

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Can AT&T adapt to competition?

LARGE companies have often been compared to ships – both, goes the analogy, can change direction, but it takes much longer to do it with a big boat. In the case of AT&T, the big question is, can the company adapt to competition after years of more gentlemanly peddling?

The settlement of the Justice Department anti-trust case against AT&T is *instructive* here. For years, the company fought break-up. One slogan it used was: "The system is the solution," implying that breaking up the company would seriously damage America's phone service.

A sub-part of this argument was that break-up would in some way damage military communications, since the Defence Department is such a heavy user of AT&T services.

For years, these assertions went unchallenged. But once AT&T was able to obtain favourable terms for an out-of-court settlement, those two arguments vanished overnight.

Changing face of the American skyline – from page 18

'AT&T knows every circuit everyone uses'

packet-switched systems and meeting business needs.

Moreover, news reports suggest deep anxiety within AT&T's ranks, as employees ponder the brave new worlds of competition, high technology, which branch of newly-splintered AT&T to work for, and so on.

But AT&T is highly skilled.

"AT&T knows every circuit everyone is using. It can visit a customer and work up a perfect financial case," notes consultant McQuillan.

With its vast employee pool and prestige, AT&T should have no trouble locating and hiring talented individuals, both within the company and from competitors.

Users of Telenet and Tymnet's public network tend to be relatively low-volume users. Large companies whose usage of Telenet and Tymnet grows over time eventually find their costs are such that they could more profitably invest in building their own networks. And when they begin moving large volumes of data over public networks, large firms – typically, Fortune 500 companies, as well as large banks and insurance companies – tend to start worrying about things such as reliability and security.

"The average Fortune 100 company has an average of five-and-a half networks, made up of modems, multiplexers, and so on," observed Chuck Stein, vice-president of Bolt, Beranek and Newman. "The concern of the Fortune 100 DP director is that he's been focusing his concern on DP rather than data communications, and his data communications bill is rising. That's when he calls in a consultant to analyse the situation."

And when the consultant arrives, what a plethora of choices he has. Telenet and Tymnet both sell private packet-switched networks, as well as providing public service; BB&N configures networks for clients, buying lines from a common carrier and selling its specialised telecommunications processor to interconnect the different manufacturers' hardware found in most large companies; satellite firms such as Cylix Communications Corp, now a subsidiary of RCA offers medium- to high-speed data communications via satellite; specialised common carriers, such as SP Communications, MCI, and others, compete with AT&T in long-distance communications, and the latest development in telecommunications, cellular telephone service, could well be the development that eliminates the costly "last mile" in data communications.

Cellular telephone service divides a service area into contiguous circles. Relatively low-powered mobile telephones communicate with a base station via radio, the base station is the connection point to the network.

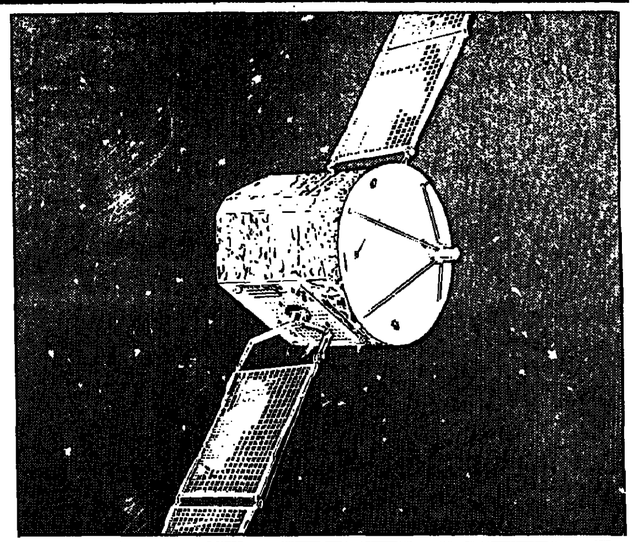
However the "telephone" can remain stationary and communicate with, for example, a satellite base station, says McQuillan.

This would eliminate the costly local loop charges.

At present the Federal Communications Commission is reviewing more than 20 cellular telephone proposals.

This does not necessarily signal that the multiplexer and concentrator business is headed for disaster, but not all locations will lend themselves to high-speed satellite communications.

"*Those businesses will co-exist* (with other forms of telecommunications) for a long time," predicts BB&N's Stein. "Large, dispersed organisations are finding that they've been ignoring the importance of communication. I think that means this business is about to take off."



Making a packet from switching

PACKET SWITCHING has its origins in a military research project begun more than a decade ago. DARPA, the Defence Advanced Research Projects Agency (part of the Department of Defence), sought a method of transmitting data in a more secure manner. A secondary motivation was to develop a communications network which would be capable of operating even if a part of it were destroyed.

The increased security was to come about by transmitting a message in parts, each part taking a separate transmission path. Survivability was to be obtained by eliminating central control of the network, by making nodes independent of one another. The final product, produced by Bolt, Beranek and Newman, was called Arpanet.

Arpanet today connects universities, defence installations, and research facilities across the US. In addition, there are nodes in the UK, Norway, and other countries.

Like many other military projects, this one was seen to have application in the civilian sector without compromising the military effort. This civilianisation was termed packet switching, and has found widespread – if not necessarily profitable – use in the data processing world today.

The public packet-switched market today is usually estimated at somewhere between $200 and $250 million. Market observers predict growth ranging from 30 to 50% a year for the next few years at least.

Some analysts predict that when American Bell's AIS/NET 1000 officially goes online in September it will provide a big boost to the entire business.

Five US firms are now particularly well-known for their public packet switched networks, on a common, dial-up basis. GTE Telenet, a subsidiary of GTE, of Stamford, Connecticut; Tymnet, a subsidiary of Tymshare, of Cupertino, California; Autonet, run by Automatic Data Processing, of Ann Arbor, Michigan; Uninet, run by United Information Services, of Kansas City, Missouri; and Graphnet, a subsidiary of Graphic Scanning Corporation of Vienna, Virginia.

The largest of these, in size, use, and public recognition, is GTE Telenet, which has recently begun to produce a profit. It connects a large number of commercial database producers, and has nodes in virtually every large US city.

Like the others, Telenet leases high-speed telecommunications lines from AT&T as well as other sources.

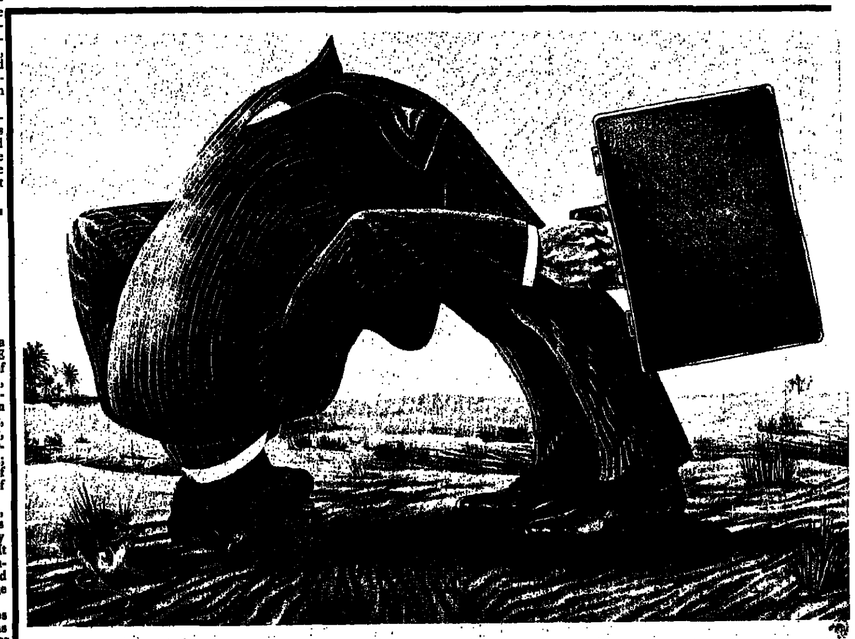
For a long time, GTE Telenet was something of a commercial curiosity. An early entrant with a good record of service and reliability, providing an apparently much-needed (and certainly much talked-of) service, it was nevertheless unprofitable. In the past year or so, GTE Telenet has apparently begun to seek out customers more aggressively.

Telenet, with the largest market share, connects a particularly diverse group of hosts: Interactive computers, database providers, electronic mail users, and so forth.

Next largest is Tymshare, which is especially heavy with conventional time-sharing computers as well as database providers.

Uninet has a large percentage of remote job entry users, while Autonet is heavily into time sharing.

Graphnet, the smallest, most recent entry, is particularly oriented to message transmission.



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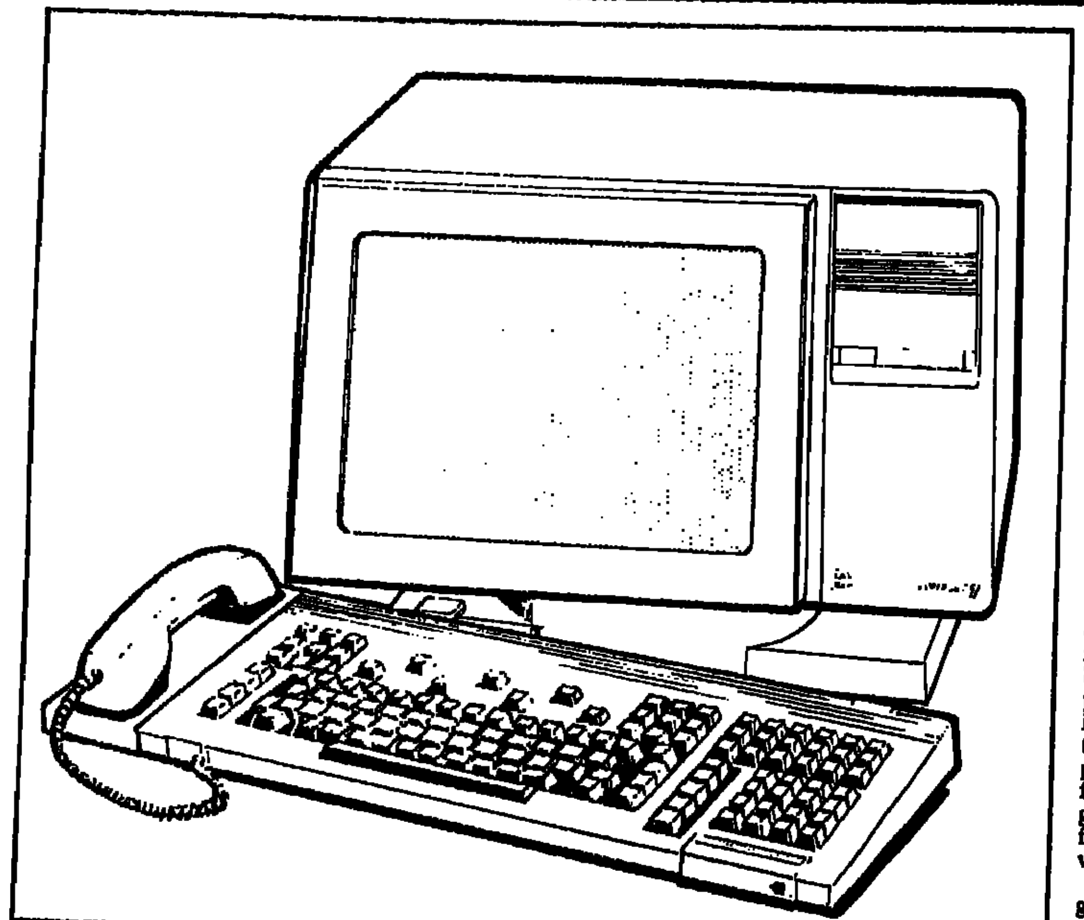


Central role for PDX in in-house networking

Hedley Voysey takes a look at the digital private branch exchange

THE major telecommunications suppliers, with a long history of exchange supply, have always maintained that the digital private branch exchange will be one of the prime means of in-house networking. These firms have a vested interest in buyers of the PDX (as the private branch exchange in digital form is generally referred to) regarding it as the hub of many data forms of communication as well as voice.

However, the expectation has grown among networking specialists other than those selling exchanges that the role of the PDX will be a central one.

Gary Christensen, vice-president for development at Network Systems Corp, said in London recently:"The PDX will be very important to many users and numerically, probably the largest slice of users for data attachments."

Network Systems Corp (NSC) has no axe to grind here as the three tiers of interconnection it is engaged in slotting into place in the networks of the world are neatly arranged to buttress several forms of network design.

The fast Datapipe slotted pipeline runs at 275 megabits per second and is aimed at clustering the most powerful computers in the world together.

The standard Hyperchannel at 50 megabits per second links mixed supplier hosts, tidies up peripheral subsystems and generally makes back-up sites a reality instead of a hope.

Where the PDX comes in is in filling out the user area.

What NSC sees as happening is that its Hyperbus local bus structure will have a backbone lane. The side streets on one side may also be 10 megabits per second Hyperbus links, but on the "other side of the street" will very likely lie a Wangnet or a PDX. Very often, according to Christensen, it will be a PDX.

Andre Schwager, Hewlett-Packard's head of the Information Systems Network Division is even more positive. He said: "Hewlett-Packard has committed itself to the use of the PDX as the principal communications method for its future computer networks for the office."

A development schedule is under way which will ensure that exchanges from Rolm, Northern Telecom and Intecom will be usable to access H-P 3000 computers.

Datapoint is also focusing work on connecting up to PDX in its future forms, and in France Thomson-CSF is setting out a strategy and product introduction plan which makes digital exchanges for in-house use an essential part of networks for office automation.

And so the roll-call goes on with the obvious listing of major exchange suppliers, but now with almost equal clout being exercised by computer companies and networking specialists.

The degree of conviction varies however. John Weeks of CAP's communications division, says: "The likelihood that bursty traffic for database queries, messaging systems and the non-file transfer kind of traffic will often be routed through the PDX is pretty high, but heavier flows of data are another matter."

Mixing voice and data across digital links is not easy. At the local area network end of the business a low speed version of Ethernet running at 3 megabits per second has shown a capability for handling 35 conversations without severe loss of quality, and maybe more if better "vocoders" are used.

Many more studies into the use of full speed (10 megabits per second) Ethernet are being pursued and the sustainable mix of voice and data traffic will eventually emerge. Part of the problem lies with the fact that to avoid poor quality in the voice side of the business, the voice packets may have to have some priority to push them over the top of data traffic.

There are plenty of schemes for doing this kind of streaming, but they all have one nasty point in common — they ruin the splendid simplicity which is at the heart of both Ethernet and ring type local area networks.

The wide area networks are dominated by complex issues and the hope has always been that these complexities could be avoided in the management of local area networks.

These hopes are beginning to fade somewhat.

It is interesting to reflect that much of this flurry of network design to back up office automation has aimed to replace some very primitive, but useful systems based on straightforward digital switches. The Micom switch which comes in several forms simply provided the user of a terminal with a way of dialling up a port among a mix of computers connected to the switch.

The whole idea is crude and if there are very large combinations

The PDX will be very important to many users and numerically, probably the largest slice of users for data attachments.

of both ports and terminals, the cost gets out of hand when compared to the cost of establishing a more formal network design.

The advantage of establishing a more formal network design is that policies for handling overloads are created and the regulation produced is on hand to process errors and certain failures on the part of subsidiary portions of the resources in the exchange or network.

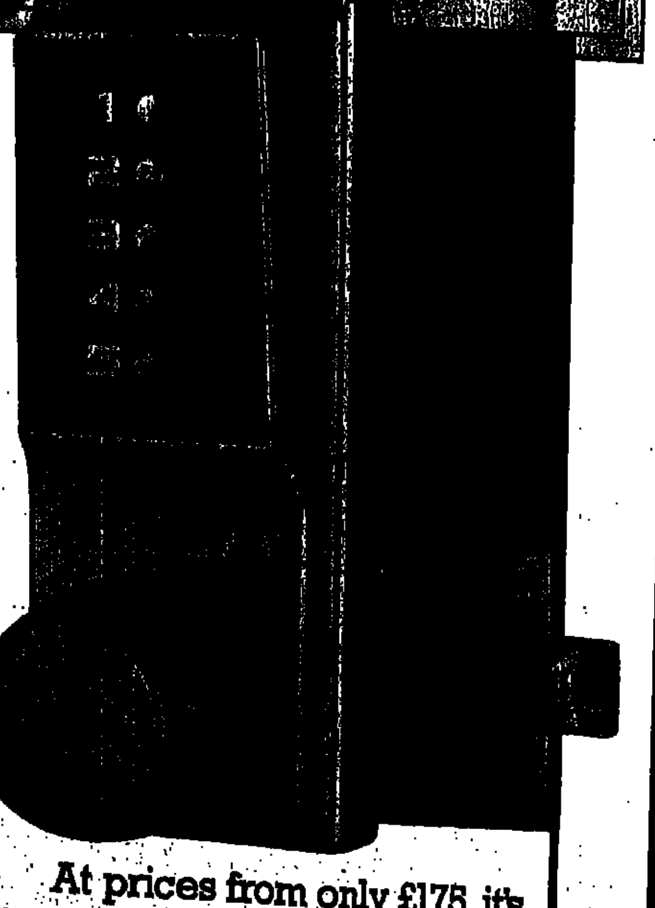
The exchange as a manager must try to keep mailboxes open as long as it is in some working shape, but many other optional services can be regarded in the same way as conventional operating systems regard processes — that is to say they can be created and then made to disappear to avoid cluttering up the place when there is no demand for a particular service.

The overhead for doing this can be offset to the extent that this enables the services to be modified without interfering visibly with users' rights and expectations.

It is not obvious how the next crop of PDX products is going to pitch itself as between the crude simplicity of the basic data switch linking any terminal to any port, and the extreme concepts advocated in digital exchange design which turn it into a cross between many operating systems and a crucial part of a generalised network architecture — in the latter case complying with all the concepts embodied within the Open Systems Interconnection model and its seven layers.

One suggestion uses addressing features to enable heavy traffic "calls" made via the exchange to be routed via a hierarchical bus structure resembling the NSC's Hyperbus design. Other ideas devote some fixed capacities to certain connections within the exchange to defer the examination of overloading by file transfer traffic.

Security program.



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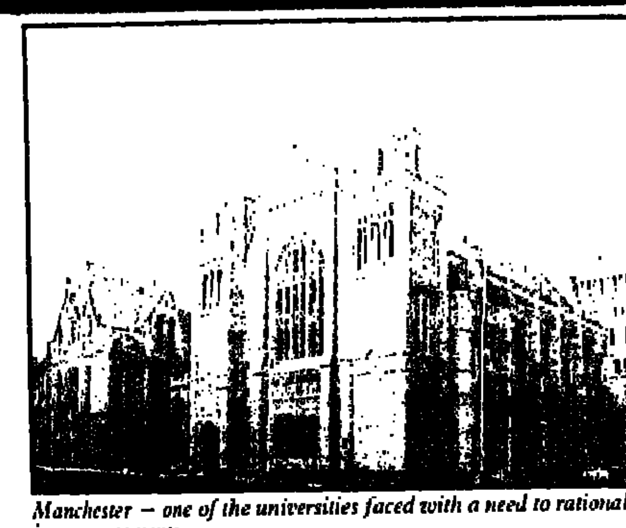
Varsities told to bring their networks into line

Donald Kennett examines the urgent task facing UK universities



Manchester — one of the universities faced with a need to rationalise networking arrangements.

UK UNIVERSITIES and research bodies are faced with the urgent need to rationalise their networking arrangements. That message has been brought home by the upsurge over the last year in their data communications activities.

Fortunately, this need coincides with the fruition of a number of projects designed to help unify the various different types of communication links currently in use, and also designed to extend their capabilities to support new applications.

The projects were initiated by the Joint Network Team, set up in 1979 to plan a detailed programme for a cost-saving approach to developing the communications facilities being paid for by the Department of Education and Science.

The JNT decided early on that there was little point in rushing to provide simplified basic mechanisms for interconnecting different computers while there were no standard protocols available to make them usable. So it commissioned more than 40 development projects for hardware and software to interface the various components of an embryonic open systems architecture to each other and to the devices that would use them.

From an initial consideration of the problems of wide area networking, between individual universities and major computing centres, the JNT found itself concerned with local communications, as user terminals and minicomputers were decentralised into the various university departments and research establishment laboratories.

The proposed unified network has been made the responsibility of a Network Management Committee set up in 1981, whose first finding was that there was widespread opposition among the autonomy-minded academics to the idea of a single new private network to support all its communications.

This was to have provided the most cost-effective solution, but the users succeeded in justifying the various ad hoc links they have continued to set up for specialised purposes and won their argument for a more expensive evolutionary merging of facilities.

The committee also considered a wholesale transfer to British Telecom's Packet SwitchStream, which would have cost at least £1 million a year at current traffic levels and would have made cost control very tricky. Further alternative public network solutions that had been proposed turned out to consist of no more than different ways of paying for PSS usage.

Pressure from users also arose in the form of an interest in implementing Ethernet buses for local communications. The JNT responded to this by setting up a performance comparison between an Ethernet and a Cambridge Ring, for which the JNT has been implementing various interfaces and higher level protocols since 1980.

The transfer to fully standardised networking when international standards replace the interim ones should involve far less effort, because the most difficult part will have been to build the layered architecture

The lack of standards for these interfaces and protocols has been a limitation on the use of both Cambridge Rings and Ethernet buses. The JNT's goal is ultimately to have the whole academic community running on internationally agreed standards for interfaces and protocols. This will give users complete freedom of choice of the equipment on which the standards are implemented. But it presumably wants to avoid unnecessary duplication of development effort.

It would also logically be keen to build on developments coming from the community it exists to support.

The Team's report for last year comments that the exploitation of the Cambridge Ring was held up by a lack of standardisation among various implementations of it. This was rectified last year when the JNT initiated a collaboration to produce a standard specification for Ring components designed to operate at 10 Mbits-per-second, called CR82.

This has now been taken up by the Department of Industry's Information Technology Standards Unit, which is having it rewritten in the form required by the British Standards Institution for BS specifications.

The DoI's Focus committee on standards has given the original document Intercept status in its standards promotion programme for industry, which means that the document is to be regarded as close enough to the form in which it will eventually emerge as a British standard for it to be used with confidence.

The design is also to be developed to operate at 100 Mbps for high-performance processor-to-processor interconnection.

Of the £1.2 million worth of contract development work that was on the go at some time during last year, £435,000 was for projects connected with the Cambridge Ring.

The largest single project was the Mace (Modular Access Control Equipment) intelligent node designed to provide a direct memory access interface for minicomputers and mainframes linking in at the Transport Level of the Open Systems Interconnection model. This work was carried out over 18 months by ICL and the Cambridge-based microcomputer networking company Orbis at a cost of nearly £243,000.

High-bandwidth local area networks such as the Cambridge Ring are regarded as the type of facility that will be considered essential in a few years. But until comprehensive standards are available for them, they will only be used where they can be supported by a fair amount of in-house development effort.

This should start to change this year, with the arrival of devices such as terminal concentrators, bridges for connecting one Ring to another and software to support Ring connections on minicomputers. The implementation of interfaces up to the Transport Level should also make interim higher level protocols developed for X25 packet switched networks usable over Cambridge Rings as well.

And the transfer to fully standardised networking when international standards replace the interim ones should involve far less effort, because the most difficult part will have been to build the layered architecture on which both are based into the operating systems of the networked processors.

Protocol implementations are what accounted for the remainder of the JNT's £1.2 million development expenditure. An early JNT decision was to recommend the use of the interim UK protocols defined in a set of books of various colours collectively referred to as the Rainbow Books.

Firm specifications for these — they include file transfer, job manipulation, terminal handling and electronic mail — and implementations under different operating systems have been emerging over the last two years. They have been progressively put to use in academic computer centres and now the JNT reports a widespread acceptance of their importance, where before there was misunderstanding and scepticism.

A dramatic change during the last year has been reported from computer manufacturers who have been asked to implement Rainbow Book protocols in tenders to supply equipment.

■ Turn to page 22

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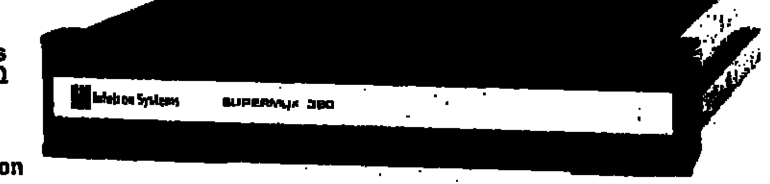

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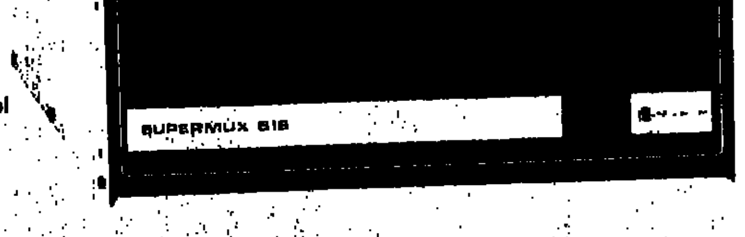

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TELECOMS

Impressive orders cannot disguise the burden that taxpayers carry for two of France's biggest telecom manufacturers, says Jack Gee

Jobs threat as French face mounting losses

FRANCE's telecommunications industry is making impressive inroads on international markets at a crucial moment when two of its three leading manufacturers are giving rise to increasing concern.

Thomson-CSF, until two years ago the most profitable offshoot of the Thomson-Brandt group (which was nationalised in 1982 with the four other major French industrial groups), and Compagnie Générale des Constructions Telephoniques (CGCT), bought from ITT after arduous negotiations, are now a heavy burden for their principal shareholder, the French taxpayer.

But Compagnie Générale d'Electricité continues to reap profits under State ownership and, through its subsidiary CIT-Alcatel, is scooping 30% of international orders for time division switching exchanges.

TSS-Alcatel, the US operation of CIT-Alcatel which is based at Reston, Virginia, recently finished the main development of the E-10 system which has been specially designed to meet American standards.

The first two E-10 exchanges are now starting up in the Indianapolis area. Marketing will begin later this year among US independent telephone companies.

Georges Pebereau, chairman of CIT-Alcatel, says: "We estimate that a $500 million market exists in the US for time division switching. We are confident that our company can carve out a good share for itself."

We estimate that a $500 million market exists in the US for time-division switching. We are confident that CIT-Alcatel can carve out a good share for itself

CIT-Alcatel is certainly turning in excellent performance reports to Jean-Pierre Brunet, a veteran diplomat whom President Mitterrand chose last year to head CGE after nationalisation.

Last year consolidated turnover rose 15.9% to FFr12,446 million (£1.1 billion). Some 40% of this was accounted for by public telecommunications. The balance came from office automation and professional electronic systems and services.

Exports rose by 50% to almost FFr5 billion. Profits are likely to come close to the 1981 level of FFr74.4 million.

CIT-Alcatel has set up an Irish affiliate, Ceanannus Mor (Alcatel Ireland) with a production facility in Bandon, County Cork. When it becomes fully operational, this plant will provide over 300 jobs. Telecommunications equipment and electronic products for both the Irish telephone system and export are being made there.

The first E-10 digital exchange has now been operating for 18 months at Ceanannus Mor. Others are scheduled for Bantry, Donegal, Sligo and Dublin.

But the biggest feather in CIT-Alcatel's cap is the signature of a set of contracts with the Indian government and Indian Telephone Industries (ITI).

CIT-Alcatel is supplying India with 200,000 digital electronic E-10 lines as well as trunk exchanges using the same technology. The first subscriber exchanges are now being installed at Bombay.

The agreement with ITI requires CIT-Alcatel to supply a factory with initial capacity of 500,000 lines and the relevant technology. The French firm has also undertaken to work with the Indians on development of a small capacity digital exchange specially designed for country areas.

All this adds up to FFr2.5 billion (£225 million) in revenue for CIT-Alcatel. But, when a trunk exchanges factory also gets under way – as the French and the Indians hope – the total deal could exceed FFr3.2 billion.

Thomson-CSF has fared less well with its MT 20-25 exchanges. Development difficulties have delayed their entry into service both in France and abroad. But 3,600,000 MT transit and subscriber lines have now been cut over or are under order.

The company forecasts a turnover of FFr3.5 billion (£320 million) from its public switching orders of which 40% will originate from export orders.

MT 20-25 exchanges have been cut over in Athens, Bogota, Baghdad, Amman, Apoquindo as well as in Aubervilliers, Amiens and Annecy for France's PTT.

The move from electromechanical exchange production to digital time-division units has caused serious employment problems for the French telecommunications industry. The new exchanges require only one-fifth of the manufacturing manpower of the old type.

The slowness of the industrial breakthrough of Thomson-CSF's MT 20-25 and the cost of shedding workers involved in making the previous generation of switching exchanges provide an explanation of the firm's parlous financial situation. For the past two years its losses, the first in its history, have been mounting alarmingly.

But in spite of Thomson's problems, France has been marking up spectacular successes in exports of telecommunication equipment at a time when its trade balance in electronics and computer products has been deteriorating.

Sales of telecom items abroad rose to FFr6,4 billion between July 1981 and June 1982, confirming an upward trend which began in 1979. Total foreign sales for 1981 were FFr4.5 billion (£400).

The top contracts included a Thomson order from Iraq for supply of 30 MT 20-25 exchanges worth 850 million francs (£68 million) and the massive Indian contract won by CIT-Alcatel.

But booming export orders for time division exchanges provide no solace for Compagnie Générale des Constructions Téléphoniques, the ITT subsidiary for which the French government paid $30 million last summer.

CGCT has obtained government guarantees that its existence as a separate company will be safeguarded. But the firm is still trying, without any apparent success, to obtain FFr2 billion in urgently needed cash to develop profitable new computer-based telecommunications products.

CGCT's survival lies at the mercy of a decision by the government. President Mitterrand's administration must make up its mind whether the former American firm is to manufacture Thomson's MT 20-25 or CIT-Alcatel's E-10 exchanges.

Chairman Pierre Lestrade, a senior official from the French Telecommunications Authority who was appointed to CGCT after nationalisation, says: "We want licences to manufacture, not orders for sub-contracted work."

Lestrade is certainly relieved that Jean-Pierre Chevènement, Minister for Technology and Industry, was dropped from the government in a reshuffle in March. Chevènement had been campaigning to have CGCT swallowed into a monolithic manufacturing company, which he wanted to call Téléphones de France, with Thomson and CIT-Alcatel.

Telecoms Minister Louis Mexandeau, who retains his portfolio in the new government, persuaded Mitterrand that both the French Post Office and foreign buyers needed a choice of suppliers. Without competition, French skill and ingenuity in devising new exchanges and other telecommunications products would slowly be eroded, Mexandeau argued.

But the problem of keeping CGCT's 8,600-strong labour force profitably active remains. Their jobs are threatened in areas of France which are already the most serious sufferers from unemployment: Paris, the North, the Calais coastal strip and Brittany where the firm's main factories and laboratories are located.

Unless French Telecom places orders on a big scale, CGCT will lose FFr250 million this year after a loss of FFr280 million in 1982.

CGCT accounts for 16% of French telephone exchange manufacture. It is puny compared with Thomson (40%) and CIT-Alcatel (44%). But the problem is particularly difficult to solve because CGCT's activities are focused on outdated Pentaconta and Metaconta electro-mechanical exchanges.

Chairman Lestrade is urging the government to guarantee his company 16% of orders for new technology products, such as private automatic branch exchanges (PABX) in which Jeumont-Schneider is performing particularly brilliantly.

CGCT has developed its own Digimat system which can provide between three and 500 lines. It is also working on a venture called Carthage, a new integrated telecommunications and data network commissioned by French Telecom for a promising trial in Rennes, Britanny. If this local test is successful big domestic and export orders could follow.

Matra, Thomson, CIT-Alcatel and CGCT are staking their hopes on the developing market for France's electronic telephone directory. With Philips' French subsidiary they look forward to sharing a booming sales of domestic terminals in the US. But, with 300,000 terminals under order this year by French Telecom – and 30 million by 1990 – the Minitel is likely to be the big money earner of France's telecommunications industry at the end of this decade.

Bring networks into line

From page 21

The JNT also recommended to the Alvey Committee that Rainbow Book protocols be used by participants in the UK fifth generation development programme and was gratified to see it become part of the Alvey report.

The JNT is now helping to urge the software packages that implement the protocols on to a wider user base through the British Technology Group, through manufacturers and through the universities and companies where the development work was done.

Although the protocols allow the range of applications that are developed to be enlarged – previously available protocols were proprietary ones for specific tasks such as access from a specific type of terminal to a specific operating system – the JNT thought that integrating voice and data traffic was still a few years away from being an economic proposition.

Traffic patterns and initial installation costs differed widely and for the time being different systems would continue to be installed for different purposes.

But users should keep a close eye on emerging standards and products. And already there were applications outside the traditional area of data processing, such as electronic mail and teleconferencing that were becoming viable and that would provide high-quality communications facilities valuable to research workers.

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CW/23/5

PEOPLE

General manager for Perkin-Elmer

■ PERKIN-ELMER Data Systems has named Brian Hanley as general manager of its UK operations. He joined the firm eight months ago as national sales and marketing manager after 20 years in sales and marketing management with Olivetti and Honeywell.

Hanley joined Olivetti in 1963 and was one of the company's top salesman.

He moved to Honeywell in 1969 to sell large computers and by the end of his first year, he was Honeywell's top UK computer salesman.

By the end of year two, he had moved into the management of sales activities in medium and large systems. During his 14 years with Honeywell, Hanley was responsible for £84 million worth of business.

He collected the top Honeywell sales awards across all the company's product lines from minicomputers to the largest computers in the Honeywell range.

Hanley

■ NCR's financial systems division in the UK is to be split into two. **Mike Newley** has been appointed manager of the general financial division which will look after UK and overseas banks, building societies and other financial institutions. He started his career with NCR in 1970 as a systems analyst. The new-styled financial systems division, which will concentrate on the major UK clearing banks will be run by director **Sean Dixon-Child. Charles Exley**, president of NCR Corporation since 1976, has been designated as the company's chief executive office. **William Anderson**, NCR's chairman, who since 1973 has served as chief executive officer, announced earlier this year his plans to retire as chairman next year at age 65.

■ **Miles Flint**, joint winner at Cranfield last year of the Business Graduate of the Year competition and of a prize for the best export research project, has joined Baric Computing Services as market development manager. He previously did freelance marketing work with microcomputer software products and communications software.

■ **Albert Knoll** has joined Gerber Systems as managing director. He will be based in Munich, West Germany. He was formerly managing director of Compeda in Munich.

■ **CMG Information Services (Scotland)**, part of Europe's largest independent computer services bureau, has made two senior appointments. **Bob Hare** has been appointed senior consultant. He previously worked with CMG for eight years before joining an Edinburgh-based computer consultancy for three years, prior to taking up his new appointment. **Bob Stinton** has been appointed information consultant. He transferred from CMG's Middlesex office.

■ **Stuart Walsh** (below) has been promoted to director at MSA (Management Science America). He joined the company in November 1978 as sales executive and in January 1981 was appointed sales manager for the UK.

■ Two senior executives have been elected to the main board of ACT. **Chris Winn**, who joined ACT nine years ago as dealer support manager in the bureau division, has been appointed managing director of ACT (International) Ltd. Also elected to the main board is **Chris Buckham**, who has been responsible for creating and executing ACT's marketing strategy in the UK over the past two years. Buckham, who joined the company four years ago, was appointed group marketing manager in 1981.

■ **Paul J. Kofmehl** has been elected president of IBM World Trade Europe/Middle East/Africa Corporation, headquartered in White Plains, New York. An IBM vice-president and a member of the EMEA Board, Kofmehl continues as director general des operations, IBM Europe, Paris, in charge of all country and area operations in Europe, the Middle East and Africa. **Georges Savy**, formerly vice-president marketing and services, has been appointed directeur general du marketing and des services, IBM Europe, and a member of the executive office. Savy's responsibilities have been expanded to all new business ventures. The IBM Europe executive office, chaired by **Raspar Caussal**, will now be composed of William Eggleston, IBM Europe; Michel Faucon, administrateur, directeur general; **Paul Kofmehl**, directeur general des operations, and **Georges Savy**, directeur general du marketing et des services.

■ **DVW Microelectronics**, manufacturer of the Husky portable microcomputer, has named **John Moss** as defence market manager and **Michael Boe** as sales co-ordinator. Moss has had over 20 years' experience in the computer and communications industry with companies including NCR, Codex, Honeywell and General Automation. Boe has worked as a buyer for Rolls-Royce and in Stock Control for Chromtryk in Copenhagen.

Richard Wadman, marketing director of Dragon Data (right) receives a special golden cassette from Peter Fanshawe sales director of Kiltdale, to mark the production of Kiltdale's one millionth data cassette. Production is now over 100,000 tapes a week.

DIARY

JUNE 1

Computers in court – DP and the law. IDPM Central London branch. Altergo, 15-19 Kingsway, London WC2. 6.00

Privacy – data protection legislation, by Michael Wood of the NCC. IDPM Sussex branch. Room G27, Mithras House, Brighton Polytechnic, Moulescoomb, Brighton. 7.00

JUNE 7

Social evening. IDPM Birmingham branch. Tickets at £3.50 are available in advance from the secretary. Buffet and skittles included in cost. Members may bring along non-members as guests. Tel: (021) 550 0375. Selly Park Tavern, Pershore Road, Selly Park, Birmingham. 7.00.

JUNE 8

Chloride Standby Systems. IEEIE. Polygon Hotel, Cumberland Place, Southampton.

JUNE 9

Wine tasting/social event. IDPM Sheffield branch. Fountain Precinct, Sheffield. 7.00. Tel: John Reedman on Sheffield 618539.

Meeting. Electronics for Peace London branch. Wren Coffeehouse, Jermyn Street, St James's Church, Piccadilly. 7.00. All Welcome.

JUNE 13

Tomorrow's staff – where are they now? IDPM Norfolk branch. Castle Hotel, Castle Meadow, Norwich. 7.30.

CONFERENCES

■ The Practical Use of Local Area Networks is a conference for managers on both data processing and managerial services who wish to benefit from the experience of current LAN users. Speakers have been invited for their experience of selecting, building and using a variety of the LAN equipment available. Conference speakers are Dr Brian Spratt of Kent University, Peter Knowles of John Laing Construction, Peter Vickery of Clubank, Brian Parker of Provident Mutual and Adrian Norman of the Cabinet Office, with Lawrie Lawrence of Midland Bank as chairman. Emphasis is on the practicalities from the senior management point of view.

The conference, presented by BIS Applied Systems, will be held on June 23 at the Cavendish Centre, London.

Details and places at £140 plus VAT may be obtained from Cherry Bigmore on 01-261 9237.

UMIST PASCAL PROGRAMMING

September 5th-8th, 1983

This course teaches the Pascal programming language and its use in the development of well-engineered high quality software. It will be of interest to programmers and engineers in industry and commerce who wish to obtain a practical introduction to the language. The course work is divided equally between lectures and practical exercises using microcomputers running the UCSD Pascal System. No previous knowledge of programming is assumed.

Course fee: £260.

Further information from: The Registrar, The University of Manchester Institute of Science and Technology, P.O. Box 88, Manchester M60 1QD. Telephone: 061-236 3311, Extension 2713; Telex 666094. Closing date for application: 18th August, 1983.

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This year, for the first time, there will be a special preview of Britain's Biggest Micro Show, enabling business people to see the wide range of personal computers and small business systems being shown by over 180 exhibitors.

And, of particular interest to business people needing advice on the acquisition and introduction of microcomputers is a free consultancy service provided by staff from the Federation of Microsystems Centres.

Apply now for an advance Registration Form to gain Free Admission.

This concession is available only to bonafide business/professional people and children under 16 will not be admitted during the Business Preview. An advance registration form will be sent to you only on receipt of the attached coupon (fully completed) together with your business card.

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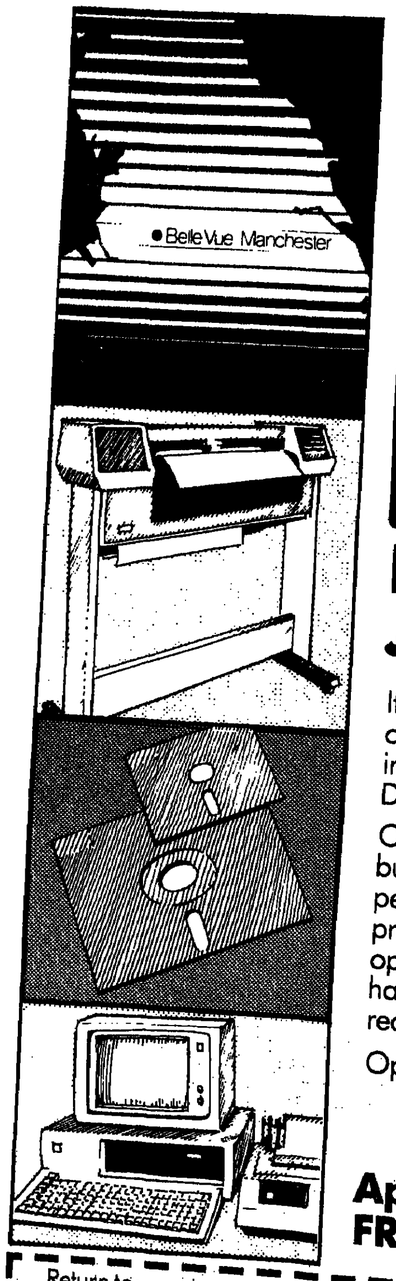

The North of England's own computer systems, peripherals and software exhibition...

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Belle Vue, Manchester. June 21-23, 1983.

If your company owns or is thinking of buying a computer, visit COMPEC NORTH '83, the only exhibition in the North of England for serious computer users and DP professionals.

On show will be mini- and micro-computers, small business systems, software, printers, terminals, other peripherals, telecommunications equipment and word processors. This exhibition offers you an unequalled opportunity to meet and discuss with the experts, hardware and software best suited to your company's requirements.

Opening times are: Tuesday June 21, 10am-6pm
Wednesday June 22, 10am-6pm
Thursday June 23, 10am-4.30pm

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Compec North is a Computer Weekly exhibition in association with Systems International, Computer Talk, Software and Practical Computing, and is organised by Reed Exhibitions, all members of Business Press International Ltd.

The Model 8374 letter-quality daisywheel printer from CTL.

Low-cost letter quality daisywheel printer

A LETTER quality printer for the CTL Series 8000 range of computers, the Model 8374, is launched by Computer Technology, which says that it offers the print quality of a modern electric typewriter on single, cut-sheet stationery.

It is well suited to applications which combine DP and word processing, for example legal, export and Customs documentation and the production of management reports on normal office stationery.

The 8374 is a microprocessor-controlled receive-only printer which provides key facilities required by word processing applications including underlining, bold or shadow printing and simple text justification. Printing pitch is selectable from six to 18 characters per inch, and line spacing is variable between 1 and 10.

The daisywheel impact-prints continuously formed characters at a nominal rate of 40 characters per second. The bi-directional print carriage is automatically controlled, and this minimises the movement of the print-head and considerably enhances the printer's productivity.

Ease of operation is one of the features of the new printer. The daisywheel can be changed by the operator and the long-life fabric print ribbon, in either black or black/red, comes in the form of an easily replaceable cartridge. In addition there is automatic paper feeding and accurate alignment of stationery fed from hoppers to keep operator intervention to a minimum.

The letter quality printer offers two alternative feed mechanisms, either a single bin or a double bin cut-sheet feeder. The double bin allows the user to interleave pre-printed headed notepaper with plain continuation sheets. Both devices are interchangeable and easily fitted by the operator.

Computer Technology (CW), Eaton Road, Hemel Hempstead, Herts HP2 7LB. Tel: (0442) 3288.

Fixed-price data distribution package

ALVERONIC Computer Systems has announced its Upgradeable Cabler – a fixed-price data distribution package.

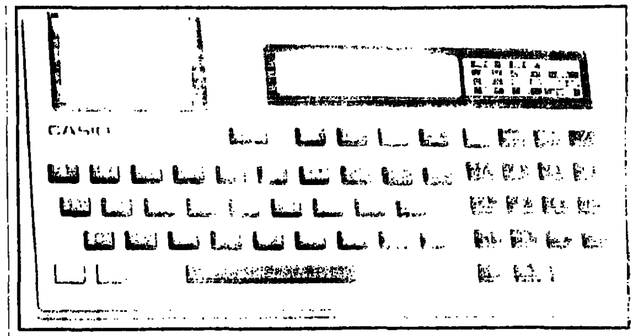
"Cost considerations have tended to limit the number and location of terminal points around any but the smallest office buildings," says Barry Smith, Alveronic technical products division director. "Staff often have to share terminals that are not conveniently located and, if people or functions have to move, re-cabling is inevitably expensive and disruptive. Adding new users to an existing system is especially costly, creating frustrations all round."

Instead, Alveronic offers to cable an entire building, either before occupation or after, at a fixed cost of £45 per terminal point. The only extras are the cost of an Alveronic-supplied "patch panel" cross-connecting each of the computer's communications ports with a chosen terminal outlet, and the standalone leads needed to link each terminal with an outlet point.

Alveronic can offer 24 or 48-port patch panels suitable for any computer to RS232 and TEEE 48 cable specification of up to eight wires under the fixed-price scheme. A variety of outlets can be selected, including wall-mounted fixed, wall-mounted jack points or flush-floor island mountings. Connections offered include quick release DIN to RS232 standard for instant user mobility.

"If a company can save only one VDU from its anticipated requirements by this approach, it will have paid for the patch panel and associated work," Smith says. "In most cases, we find that datapoint distribution actually saves money while improving the flexibility of terminal access throughout the firm."

Alveronic Computer Systems (CW), Alveronic House, Ryde Avenue, Hull, N. Humberside HU5 1QQ. Tel: (0482) 445461.



The Casio FX802P pocket computer with built-in printer.

Pocket computer's built-in printer

JOINING the FX700P/PB100 family of pocket computers, Casio FX802P is the first to have an integrated printer. It makes a complete hard copy data processing system in a compact unit, about the size of an average wallet.

At a recommended retail price of £99.95, it works out cheaper than one of the earlier "naked" machines with an add-on printer, yet it retains full compatibility with the existing FA3 cassette interface, says Casio.

Programming language is Basic. Computing capacity includes simultaneous residence of up to ten separate programs, totalling 1,568 steps and 26 memories. Memory storage can be expanded at will in exchange for program steps, up to a maximum of 226 memories.

Printout, under direct or program control, is on 38mm wide paper. Use of a mosaic system for both printout and liquid crystal display ensures good graphics for special symbols, says Casio.

Keyboard layout has been further refined, with the conventional qwerty keys in staggered rows and with an extended space bar, after the normal big computer style.

Casio Electronics Co. (CW), Unit 6, 1,000 North Circular Road, London NW2 7JD. Tel: 01-450 9131.

Head life of 30 million characters

A LOW-COST printer, the DDTSP83 from Data Design Techniques is an 80 column, serial, dot matrix system with a printing speed of 80 chps. It is designed to operate through software control directly from a microcomputer, office computer or similar device which has a printer port for Centronics or RS232 specifications.

Graphic character code set is also available with the capability of printing in bit image graphics. In addition, the DDTSP83 has considerable formatting capabilities with its own internal microprocessor system.

The DDTSP83 uses a cartridge ribbon, and this printer has a head life of approximately 30 million characters, after which the head is easily replaced.

The printer, priced at £325 (end-user), is available now.

Data Design Techniques (CW), 68/70 Twein Road, Welwyn Garden City, Herts AL7 1BD. Tel: Welwyn Garden 34774.

The Gallid data holder – freeing computer users from mounds of paper.

Data holder will cut out those lost lines

A DATA holder which incorporates a mechanism so well balanced that the holder can be moved without the use of clamps, is the claim of Gallid.

The data holder has a cursor which can be moved by the user, easily eliminating the possibility of missing out lines which can happen through eyestrain.

Gallid says it has given great thought to the data holder to ensure that it can be easily adjusted and a special spring tension allows it to be positioned with documents without the need to clamp the mechanism.

The data holder can be used on a desk or in combination with a Gallid VDU trolley.

It can be locked, if required, when used with a book or manual.

A wide range of versatile fitting accessories is available to enable the data holder to be incorporated into control consoles, drawing boards, instrumentation panels, etc.

It is available in A4 and A3 document sizes and comes in a wide range of colours.

Gallid (CW), 1 Bilton Road, Rugby, Warwickshire CV22 7AA. Tel: (0788) 74442.

THIS Pericom 7800 terminal upgraded to graphics, has the latest "extra" – a joystick to control the cursor movement around the screen.
The joystick, on the operator's right, is mounted in a separate housing designed to match the keyboard.

Pericom Data Systems (CW), 5 Tanners Drive, Blakelands, Milton Keynes, Buckinghamshire MK14 5LJ. Tel: (0908) 614242.

Sintrom add-on for the LSI-11

AN add-on system for the DEC LSI-11, which supports both 22-bit and 18-bit addressing and converts this microcomputer system to offer the versatility and power of much more expensive DEC minicomputers, has been launched in the UK by Sintrom Electronics.

The Dataram M23 fully supports the 22-bit main memory addressing of the DEC LSI-11/23 computer which offers four megabytes of main memory, but unlike the DEC LSI-11/23 it enables the user to take advantage of the wide range of powerful peripherals which run on systems using 18-bit controllers.

The key to the M23 System is Dataram's proprietary memory management Q-MAP, which emulates the memory management of the DEC KT24 and provides input/output mapping to support the wide range of existing peripheral controllers using 18-bit bus, Q18. It is compatible with RSX11-M, RSX11-M Plus, RSTS, Unix and all other DEC operating systems which support the KT24.

The cost of the basic configuration in single quantities is £7,575 and each additional 1.0 Mbyte quad board is £2,222. Discounts are available for OEM quantities.

Sintrom Electronics (CW), 14 Arkwright Road, Reading, Berks RG2 0LS. Tel: (0734) 875464.

British-built VDU on sale

COMPUTERWARE has introduced a British-built visual display unit that emulates the DEC VT100. Known as the TT102 Plus it has a 15 in. screen which is available in green, bronze or white.

The large screen with etched bonded faceplate, and a specially designed character set, makes it suitable for 132-column work with a minimum of operator strain, says Computerware.

The unit is housed in a new style compact casing which has built-in tilt and swivel facility. It uses a low profile precision keyboard which is ergonomically designed to the German DIN standards.

Many facilities are included as standard, including European character sets and a standard hard copy channel.

The VDU is manufactured by Tribestar Technology in Milton Keynes, which has appointed Computerware as the UK selling agent. Computerware is looking for distributors and OEMs.

Computerware (CW), 55 Chapel Street, Thatcham RG13 4JS, Berkshire. Telephone: (0635) 68381.

Mannesmann Tally adds to its range of matrix printers

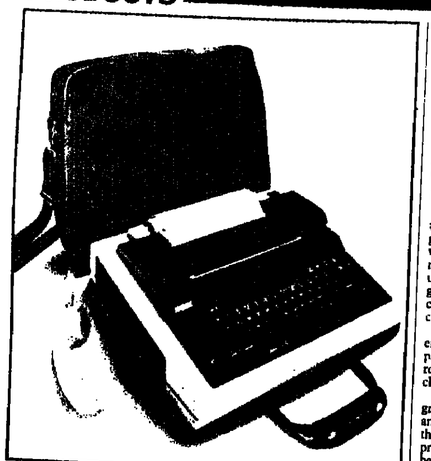
THE MT12X series is the latest addition to Mannesmann Tally's family of matrix printers. Comprising the MT123, MT125 and MT127, the series offers a compact, cost-effective solution for special multi-function printing applications at speeds of up to 160 chps.

The range is compatible with many microcomputer systems due to the industry-standard interfaces incorporated in all Mannesmann Tally's printers.

Each printer is easy to operate, say the manufacturers, with simply-selected variables and features, including character pitch and style, tabulation, double-width characters and self-test facilities.

The MT12X series provides various divided paper-feed systems as well as manual and semi-automatic front feed facilities. Each printer is available with a variety of printheads (J, D or L).

Mannesmann Tally (CW), Molly Millars Lane, Wokingham, Berks RG11 2QT. Tel: (0734) 788711.



The LA12 portable printer.

New portable plain paper printer

RAPID Terminals offers immediate delivery of a new plain paper, portable printer manufactured by Digital Equipment Corp. Known as the DECwriter Correspondent (LA12), it is a 150 character per second dot matrix printer that measures 46.5 × 14.4 × 39.4 cm and weighs 9.1 kg.

In addition to the usual EIA standard RS232C, RS423 and CCITT-V28 serial interfaces, the LA12 also incorporates an acoustic coupler, approved to work on British Telecom modems, allowing it to be connected to a host computer over standard telephone lines when being used at remote locations.

The LA12 employs a friction feed platen that will accommodate any paper up to 8.5 inches wide, including paper rolls, fan-fold computer printout paper and pre-printed forms up to 14 inches long. A tractor feed option is available for use with fan-fold paper if required.

Each character is printed within a 9×9 dot matrix with true descenders. Character spacing can be varied between 5 and 16.5 characters per inch, the latter allowing a full 132 characters to be printed on 8.5 inch wide paper.

For international use, the LA12 incorporates a universal power supply and character sets for ten languages. The full 128 Ascii character set can be printed using the LA12's qwerty standard keyboard. In addition, the keyboard can be changed to numeric data entry mode using a single keystroke (an indicator shows if the numeric mode is selected).

The LA12 is flexible when communicating with a host computer. Two models (C and D) are available, both having the EIA serial I/O port operating at 50 to 9600 baud.

Rapid Recall (CW), Rapid House, Denmark Street, High Wycombe, Bucks HP11 2ER. Telephone: (0494) 26271.

Colour graphics from any online applications

MAN-GRAPH, high level colour graphics as direct output from any online application, is announced by Cincom Systems.

Designed to be used in conjunction with Mantis, Cincom's fourth generation application development system, Man-Graph may be used by both novice end users and experienced programmers to compose and display complex business charts, says Cincom Systems.

Data for the final output can be entered directly into a 3270 compatible graphic terminal and the resultant multi-coloured graph or chart is available immediately.

With Man-Graph users design graphs and charts, graphic text and diagrams online interactively through user friendly menu driven procedures. The designs can also be used by online Mantis applications. These applications can access the data control database, manipulate the extracted data and display the results directly in easy to understand graphic form without the need for intermediate files and "batch" type processes required by most other graphic systems.

Other capabilities include multiple axes per chart; complex composite layouts; framed charts; control over colour; position and size of charts; and text plus hand copy of designs via a 3287 or compatible printer.

Man-Graph consists of two components – interactive graphics design (IGD) and graphics access control (GAC).

IGD, which composes and designs single chart layouts, text strings and composite layouts of charts, is menu driven and allows users to define charts, define complex layouts comprising of multiple charts and text strings, save layouts for future use, test charts with manually entered data, display and print pre-defined designs, modify previously defined charts and generate chart presentation sequences for direct business presentations or for slide making.

The design types available are bar charts, line graphs, surface diagrams and stacked bar charts. Text may be either 3270 standard or stylised graphics text.

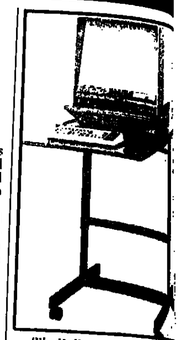
At any stage in the design process the current design can be displayed for verification. Once the design is satisfactory the charts and layouts may be stored or used with manually input data, stored in a separate file and needing no programming.

Alternatively more powerful usage of Man-Graph can be obtained through direct output from online applications using the Graphics Access Control (GAC).

Using Mantis, the programmer may identify pre-defined layouts for direct output of data and information. Mantis accesses data in the computer files, manipulates it as desired, performs statistical analysis and passes the results to GAC. The required format or layout is identified by GAC which then generates the actual display using the data.

A powerful and useful element of GAC is the facility for the end user to enter new numeric and text values directly on to the graphic display. These values are then read by the application program, new output values calculated and the modified result displayed.

Cincom Systems (UK) (CW), St Ives House, Maidenhead, Berks SL6 1QS. Tel: Maidenhead 29456.



The Rollcart from Information Design.

Reader eliminates guesswork

THE Rollcart, introduced by Information Design, is designed to meet the needs of those working with microfiche readers and reader/printers. The height of the table is adjustable from 25 inches to 40 inches.

The tabletop and sliding wing table extensions are made of reflection-free material, reducing and preventing glare on the microfiche viewing screen.

The Rollcart is available with two lockable drawers located beneath the tabletop for storage of paper and toner. Each drawer can hold a minimum of two file boxes. Both drawers contain a safety cylinder lock for security as well as ballbearing telescope rails for easy movement of the drawers.

The Rollcart comes with locking casters for easy movement in an office environment. The reader shown on the Rollcart is an ADC-3AD microfiche front projection automated frame retrieval unit that displays any page on a standard microfiche by keyboard entry, so improving user efficiency.

Price for the Rollcart without drawers is $225, and with two drawers $425.

Information Design (CW), 1300 Charleston Road, Mountain View, CA 94043.

The RS-906 sheet feeder from Peripheral Hardware.

Compact sheet feeder

THE RS-906 single bin sheet feeder for the Daisy Systems M45 printer, now available from Peripheral Hardware, has automatic cut sheet insertion and stacking. A compact and lightweight unit, it is easily installed by the operator by simply clipping it on to the printer plate and connecting the power/paper-out cable which is found in the printer, say the manufacturers.

The RS-906 accommodates paper lengths from 92mm to 356mm and widths from 140mm to 305mm, allowing printing in both portrait and landscape modes. Every line position can be printed, including the extreme top and bottom lines.

No control signals are needed to operate the RS-906. A self-contained microprocessor keeps track of paper alignment and automatically inserts the next sheet at the correct top of form position. This feature eliminates the need for special software in the user's system to control the feeder.

Peripheral Hardware (CW), Monkspath Industrial Park, Solihull, West Midlands. Telephone 021-745 3033.

Four more thermal head models

MITSUBISHI Electric has developed and is marketing four new models of thick-film thermal heads for high-speed printers.

In addition to a thermal head with a resolution of eight dots/mm and a thermal head with a resolution of 12 dots/mm which Mitsubishi Electric put on the market last June, the company recently marketed an intermediate range thermal head in two models, the S216-95 for the A-4 format and the S257-95 for the B-4 format, with a resolution of 9.5 dots/mm (240 dots/inch). And this month, Mitsubishi Electric marketed the S216-6 and S260-6, with a resolution of six dots/mm.

Mitsubishi Electric plans to manufacture 3,000 units of the 9.5 dots/mm models and 30,000 units of the six dots/mm models round the first year.

As thermal heads are virtually maintenance-free, noiseless, and extremely compact, they are widely used in facsimile systems and terminal printers. Other applications for these low energy consuming thermal printing heads are in hand-held computers, unmanned geological and meteorological measurement stations, medical instruments, automatic bank tellers, automatic ticket printers, point of sales systems, etc.

Mitsubishi Electric expects the new 9.5 dots/mm thermal heads to be widely used in inch-size printers.

Mitsubishi Electric Corporation (CW), 2-3 Marunouchi 2-chrome, Chiyoda-ku, Tokyo. Tel: Tokyo (218) 2171.

High speed stacker

A PATENTED high-speed precision forms stacker is now available from Eyecote (Data Devices). The DataStacker pulls forms from a printer and stacks them at printing speeds up to 2000 lines per minute and skip rates of up to 80 inches per second. In so doing it overcomes static electricity and gravity feed problems, eliminating printer downtime.

Free-standing, the DataStacker is fully automatic and will handle all standard continuous fan-folded forms, including 11lb single-part.

Eyecote (Data Devices) (CW), Saltcoats House, Cutlers Road, South Woodham Ferrers, Essex. Tel: (0245) 329966.

Speeding the work of the WP operator

AS a basic word processor, the Dictaphone Series 6000 has text editing, standard letter production with address matching, page numbering and auto pagination, global search and replace for multiple revisions of work throughout stored texts, auto-indexing of key words (eg to make a contents page for long reports), temporary and permanent phrase libraries, forms fill and records selection according to 20 simultaneous conditions, footnote "floating" to the correct page, maths processing, multi-tasking and multi-operator access to store.

Experienced operators have two important features to speed their work through. One is called Side Step, a shorthand style command sequence which allows them to skip through unnecessary preliminary stages to go directly to the point at which they wish to start work.

The other, called Set-Up, allows operators to use software features more easily by having the system remember their document formats and feature selections.

Dictaphone Co (CW), Regent Square House, The Parade, Leamington Spa, Warwickshire CV32 3NL. Tel: Leamington Spa (0926) 38311.

The Dictaphone 6000 word processing system.

Letter-quality printer

THE Daisy Systems M45 letter-quality printer can now be attached to a wider range of host systems, using new interface modules available from Peripheral Hardware.

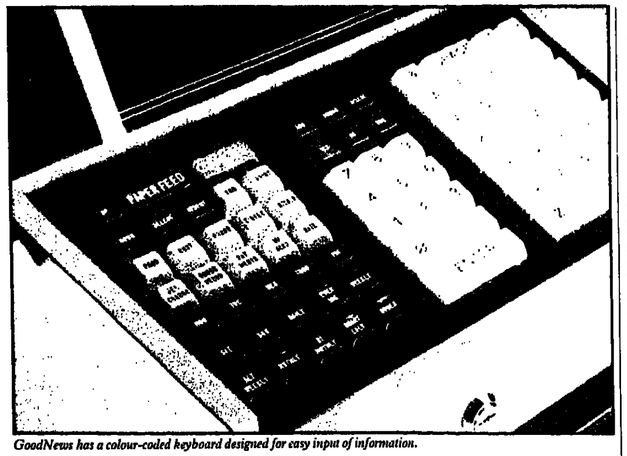
The M45 has been designed to accept plug-in interface modules which fit it for any system, whether mainframe, mini, micro or advanced word-processor. The new INT4 and INT5 modules provide General Purpose Interface Bus (IEEE-488) and IBM System 34/38 interfaces respectively.

The INT4 IEEE-488 interface is delivered, with a standard 24-pin connector and full information on selecting interface function and parameters. It uses a 6809 microprocessor, with a 68488 interface chip which will handle all protocols implemented to the IEEE-488 specification. The INT5 IBM System 34/38 interface accepts IBM EBCDIC code and provides all necessary coaxial termination.

Price of the Daisy Systems M45 is £1,380; and the prices of the INT4 modules are £1,380 and £2,828.

Peripheral Hardware (CW), Monkspath Industrial Park, Solihull, West Midlands. Telephone 021-745 3033.

The Daisy Systems M45 printer.



GoodNews has a colour-coded keyboard designed for easy input of information.

System is GoodNews for the paperman

"NEWS distribution constitutes up to 40% of many newsagents' business – but takes up a disproportionately large amount of his time. What we have done is to tip the balance the other way, and make it possible both for the newsagent to expand this side of his business and save him much of the time, fatigue and aggravation he has to spend on it."

With these words, John Martin, chairman of Martin the Newsagent, announced the launch of GoodNews, claimed to be the first complete computer system for newsagents.

GoodNews combines, for the newsagent side of the business, stock control, distribution and accounting facilities with a counter-top cash register, all in a compact package.

GoodNews is designed for newsagents, by newsagents, in conjunction with Dollabarn, trading as Halo.

The system, comprising keyboard, display screen, audit roll, payment till and separate high-speed printer will fulfil all the "back office" functions with the front-of-shop cash register tasks, says the manufacturer.

When the first news orders are delivered, the newsagent can, in one step, key into the system information that was previously stored in four separate ledgers – what is expected, what has arrived, who is to receive it and how much it will cost. It then immediately prints out the rounds lists.

Items for sale or collection in the shop, or saved for customers on holiday can all be logged at the touch of a button; price changes can be effected in seconds.

Martin Halo is distributing the GoodNews package at a purchase price of £3,950, and leasing terms will be available. The package comprises hardware, software, user manuals, paper and audit rolls, initial installation training and data transfer assistance.

Martin Halo (CW), Martin House, Ashwells Road, Brentwood, Essex CM15 9ST. Tel: (0277) 72916.

£125,000 orders for disc system

SYSTEMS Support Services of Surrey has announced a new disc system, the Wasp. Based around the company's own high performance dual purpose controller, Systems Support Services has produced a disc system which it says meets major requirements among end users, dealers and manufacturers – higher performance disc drives, higher security, more flexibility and simplified usage.

The Wasp is a standalone disc system that incorporates up to 40-megabyte disc drive, 48-megabyte cartridge streaming drive, disc/tape controller, power supplies, cables and software.

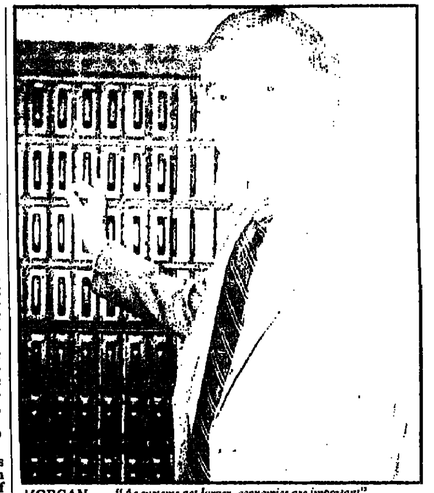
The product is now available to run on Sirius, IBM PC and DEC.

The controller, which interfaces the Winchester disc drive and ¼in cartridge drive to the range of systems, has attracted wide interest through Control Data, the supplier of the drives, and Systems Support Services anticipates significant orders for the controller and the disc system.

Ralph Warren, director of Systems Support Services, claims, "We know that in many cases, computer systems users are being hampered by inadequate disc storage and disc drives are in turn being hampered by inefficient controllers. The combination of our controller and CDC's products offers a unique product that outperforms disc storage options provided by manufacturers by factors of up to 50 to 1, yet has in-built security and ease of use features."

Initial orders for the Wasp exceed £125,000.

Systems Support Services (CW), 57 Woodham Lane, New Haw, Weybridge, Surrey KT15 3ND. Tel: (0932) 55932.



MORGAN . . . "As systems get larger, economies are important".

Peripheral switch to UK market

AN expandable computer matrix switch, introduced into the UK by US switch manufacturer T-Bar, is designed to link peripherals and CPUs within large systems more efficiently.

The switch, the 3690 CSM, has several new features. Individual port modules (for peripherals, such as tape and disc controllers, unit record equipment, etc) and CPU channels can be incrementally upgraded to a 16x24 matrix.

There is remote access to the switch via a microprocessor controlled VDU, and its segmented architecture allows easy future upgrading with differential peripheral interfaces. The smallest sized switch which has an 8x8 matrix costs £52,000, and is aimed primarily at IBM users.

The switch employs hard contact technology, with each cross point on the matrix comprising a single hand removable module. It functions in a high speed environment including data streaming at three Mbytes.

Attention has been paid to security and back-up. The switching can still be done physically as well as by keyboard, and the switch has in-built protection to prevent disconnection of an active device by the operator. The VDU can provide instant plans of the configuration and has in-built diagnostics to highlight problems.

The 3690 gives customers the flexibility to change devices to whatever applications are needed at the time, with no need for dedicated databases. T-Bar's chairman and chief executive, Henry Morgan, said: "In the 1970s large systems had several hundred terminals, whereas now they not only have tens of thousands of terminals, but the computers are dispersed and are performing multiple tasks. As systems get larger it is becoming important to develop economies."

The switch is segmented for easy upgrading. The control system is separate from the switching system, so future changes, for example to fibre optic technology, will not mean changing the whole switch, but simply the interface. The switching modules can also be used for parallel or serial interfaces.

T-Bar (CW), 141 Danbury Road, PO Box T, Wilton, CT 06897. Tel: (203)-834-8368.

Graphics processing unit from Tektronix

THE 4170 graphics processing unit, a locally programmable processor capable of converting any of the company's 4105, 4107 or 4109 display terminals into a standalone computer specialised for graphic tasks, is announced by Tektronix.

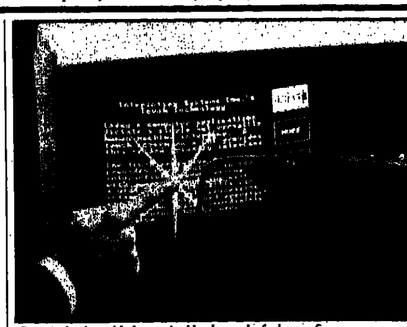
The 4170 brings distributed processing to a host environment. Host data is down-loaded to a terminal for interactive graphics, accessing firmware features, and controlling peripherals connected to the terminal.

The configuration of these terminals and the 4170 provides compatibility with the existing members of the 4110 Series terminals (4112A, 4113A, 4114A, 4115B). All include the same CP/M-86(R) operating system, and Fortran compiler. This gives the user latitude in terminal upgradability and application growth, says Tektronix.

The 4170 consists of two Intel processors, the 8086 and the 8087 numeric co-processor for data intensive functions, 256Kbytes of RAM, two 5¼in floppy discs, four RS-232-C interface ports with data rates adjustable to 19.2K baud, and three circuit board option slots. The unit is housed in a compact cabinet which fits beneath a bench or alongside a desk.

Standard software includes the CP/M-86(R) operating system, a Fortran-86(R) compiler, utility programme and graphics software.

Tektronix (CW), PO Box 69, Harpenden, Herts AL5 4UP. Tel: (05827) 63141.



Communicating with the terminal by the touch of a human finger.

Touch-sensitive VDU for UK

ARRIVAL in Europe of a revolutionary touch-sensitive visual display unit that can be linked to all CRT and flat panel display systems is announced by Cameron Communications.

The TK 1000 range, pioneered by Interaction Systems, of the US, allows the touch of a human finger – or for more precise interaction, any suitable metallic pointer – to communicate with the terminal.

In contrast to earlier – and existing – touch detection systems, the TK 1000 has no reliance on mechanical, infra-red beam or wire grid devices which can render such systems prone to component failure, and its faceplate is scratch and abrasion resistant. In addition, it has an anti-glare/contrast-enhancing surface which has been specifically designed for office, shop floor and general public use.

Unlike competitive systems, the TK 1000 kits provide complete flexibility for the definition of touch sensitive areas, detecting the "x" and "y" co-ordinates of the point which has been touched in an 8-bit numeric output for each of the two dimensions. The resolution of touch is definable from 1x1 up to 255x255.

Faceplate stocks include 12, 15, 16 and 19-inch sizes, although for quantity requirements, tailored faceplates can be manufactured. The first units available will comprise a TK 1000 development system, including a faceplate, a cartridge housing the touch sensing circuitry, an LED position display unit; and an RS 232 communications port.

Cameron Communications Division, Burnfield Road, Glasgow G46 7TH. Tel: (041-633) 0677.

Budgeting package introduced by EPS

A SOFTWARE package designed for the preparation of budgets has been released by EPS Consultants.

The new system, FCS-Budget, is part of a planned programme by EPS Consultants to provide packaged software for the most frequently used applications of its FCS-EPS financial modelling system.

FCS-Budget handles budgets covering four, 12 or 13 periods allowing up to 900 rows for each budget.

EPS Consultants (CW), 35 Soho Square, London W1V 5DG. Tel: 01-439 8221.

Interface for V80 printer plotter

VERSATEC has announced an IEEE parallel interface for its V80 electrostatic printer plotter.

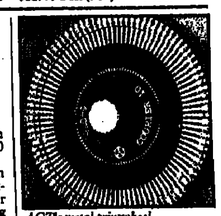
The V80 can now provide high quality electrostatic graphics output for a wide range of computer and microcomputer systems using the IEEE 488 standard, says Versatec.

The company has already won a major order from ICL to supply V80s with the IEEE 488 interface for use with its peripheral single user Perq workstation system, which exploits the latest developments in technology to provide high performance raster graphics.

The interface is supplied with a standard 2.5 metre IEEE cable.

The V80 electrostatic printer plotter plots with a resolution of 200 dots per inch and a maximum plot speed of 1.4 inches per second on 11in roll or fan fold paper. In print mode it has a maximum speed of 1,000 lines per minute and 132 characters per line.

Versatec (CW), 27-35 London Road, Newbury, Berks RG13 1JL. Tel: (0635) 42421.



AGT's metal printwheel.

New line in printwheels

AGT Computer Products, a Southern California manufacturer of daisy printwheels, has introduced a new line of Wang compatible metal printwheels. Available immediately are 15 of the most popular models, in 10, 12 or 15 pitch and proportional spacing. These metal printwheels are said to offer print quality of four to five times the life of a plastic wheel.

In addition to the Wang printwheels, AGT offers a complete line of plastic, dual plastic and metallised printwheels.

AGT Computer Products (CW), 20675 South Western Avenue, Torrance, CA 90501.

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WS78	Word Processing System	291	246	201	171	141
VT180	(VT18X, VT100) CPM	155	131	107	91	75
TERMINALS						
VT100	Terminal	92	77	63	54	44
VT101	Terminal	72	61	50	42	35
VT102	Terminal	89	75	61	52	43
VT131	Terminal	92	77	63	54	44
VT125	Regis Graphics Monochrom	197	166	136	115	95
VK100	GIGI Graphics Colour	174	147	120	102	84
PRINTERS						
LA120	Printer	108	90	73	62	51
LA180	Printer	72	61	50	42	35
LA38	Printer	43	36	30	25	21
LA38+	Printer	82	69	56	48	39
ADD-ONS, ADD-INS						
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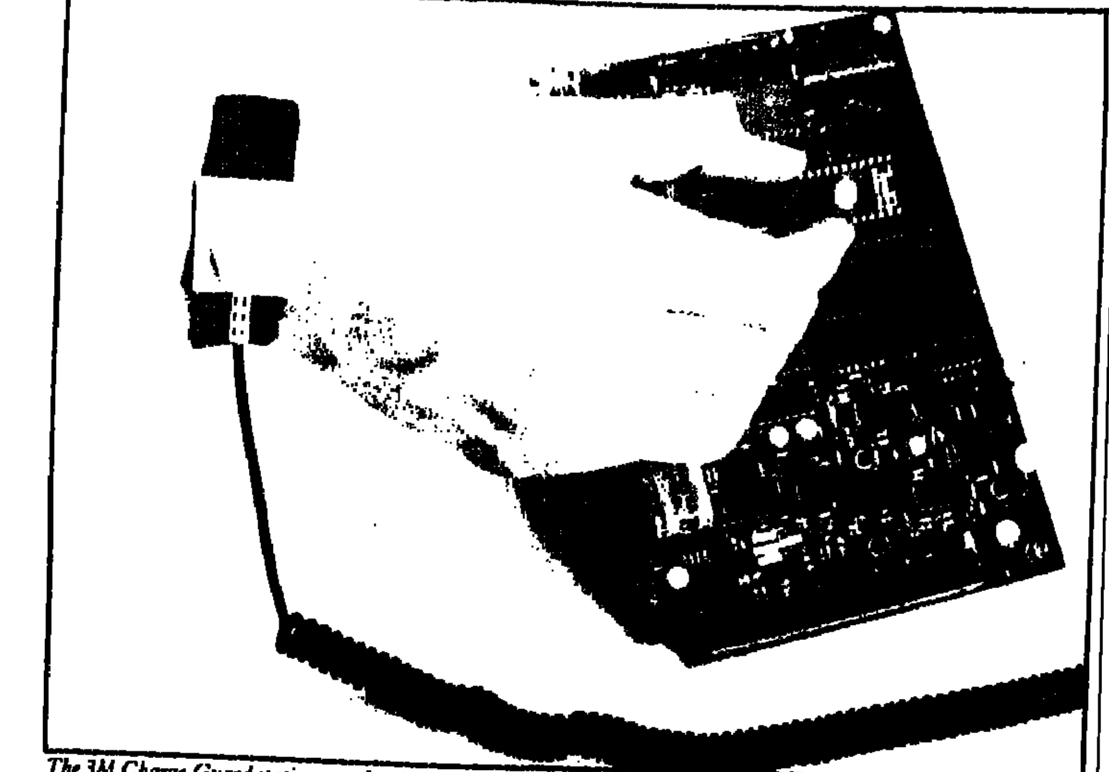


The 3M Charge-Guard static control wrist strap.

'Comfortable' static control wrist strap

FOLLOWING a market survey to investigate the shortcomings of static protection techniques in electronics manufacturing, 3M has developed a static control wrist strap which offers comfort, convenience and efficiency.

It is particularly suitable for applications where user-acceptability is a major consideration, says 3M.

Independent tests have shown that 20,000 volts or more can build up on the human body in the form of low-current static electricity, yet only 100 volts is sufficient to damage many semiconductors or integrated circuits. The 3M Charge-Guard wrist strap protects devices from such damage by grounding static carried by production personnel engaged in the assembly of components, or service engineers operating in the field.

It employs a combination of stainless steel fibres and elastic nylon, woven together to produce a highly-conductive, corrosion-resistant band that is comfortable to wear, says 3M. The material is soft, lightweight and "breathes", while its elasticity ensures good contact is maintained with the wrist at all times.

Durability is also a feature. Performance is unaffected by perspiration or body oils and the use of stainless steel for all metal parts allows the strap to be washed regularly without deterioration.

An insulated outer surface reduces the chance of accidental injury and exhibits sufficiently high resistivity to prevent fusing to live contacts. Additional safety is provided by a one-megohm resistor moulded into the earthing lead connector.

The earthing lead is attached to the wrist band by means of a snap fastener of 3M design, which offers 360 degree contact but enables instant disconnection without removing the band from the wrist. Its swivel action and strain relief control minimise cable stress.

Connection to a suitable earthing point is effected by a banana plug, or crocodile clip attachment supplied for field service engineers. If the wearer strays too far from the workstation, the band's natural elasticity reminds him that disconnection has occurred by delivering a gentle "slap" on the wrist.

The Charge-Guard wrist strap is available with either a coiled telephone-style cord extending to 5ft (Model 2066) or a standard straight 4ft lead (Model 2067). A choice of bands is also offered to accommodate variations in wrist size.

3M United Kingdom (CW), 3M House, PO Box 1, Bracknell, Berks RG12 1JU. Tel: Bracknell (0344) 58307.

Disc drive range extended

GOULD SEL has extended the range of disc drives on its Concept/32 series of 32-bit superminicomputers. It will now offer the Model 8137 80 Mbyte mini-cartridge removable disc drive and the Model 8147 160 Mbyte mini-Winchester disc drive.

The mini-cartridge is a random access disc drive featuring front-loading 9in diameter cartridge media which is removable as a sealed unit. This minimises the effects of particle contamination when the cartridge is removed from its drive.

Another feature of the 8137 is an actuator and spindle lock mechanism which takes effect when power is removed, making the disc drive suitable for applications which require periodic transportation.

The Model 8137 consists of a data cartridge with 82 Mbytes of unformatted data storage capacity, spindle, direct coupled DC brushless drive motor with digital speed control, universal power supply and actuator. It optionally allows frequencies of 50 or 60 Hz.

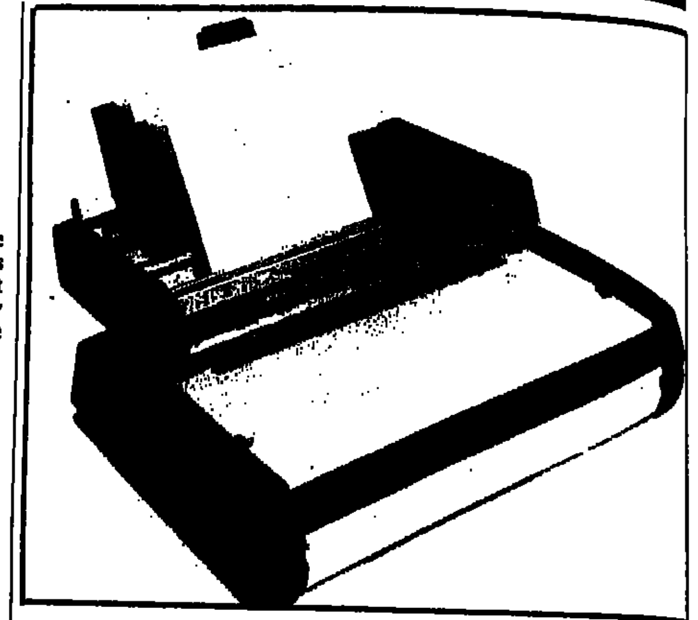
The Model 8147 completes the range of disc drives, providing a middle storage capacity between the company's 80 and 300 Mbyte disc drives, and offers mid-range storage capacity for CAD/CAM application and in energy management and control.

It is a rack mounted, fixed media drive with 165 Mbytes of unformatted data storage capacity. The 8147 provides industry standard SMD compatibility and performance in a small package in which advanced electro-mechanical design results in low power consumption, says Gould.

The 8147 disc drive has a sealed disc module that contains the disc heads, rotary type actuator and air filter. The drive uses light-load, contact-type, start/stop heads and lubricated media for high reliability. The heads are returned to a landing zone out of the data area during spindle start and stop functions, reducing the possibility of media degradation in data areas.

Both disc drives use low power Schottky and ECL technology.

Gould SEL Computer Systems (CW), Rafferty House, 2-4 Sutton Court Road, Sutton, Surrey.



The GE dot matrix printer with automatic sheet feed.

Quick and quiet dot matrix printers

THE General Electric 3000 series of dot matrix printers, which are claimed to offer near letter quality with three different speed options and quiet operation, has been introduced by ISG Data Sales.

The 3000 series comprises six different standard and dual mode models, ranging in speed from 100 to 500 characters per second with pitches of 10, 12, 13.1 and 16.5.

With dual mode models, quality printing is provided at speeds of up to 200 chps.

Costing from £1,700, all the models in the range combine DP and word processing capabilities, with a choice of 86 or 136 column designs plus 72x72 dot/inch graphics.

Designed for applications ranging from light duty cycle professional data printing to heavy duty, high volume, data or word processing, the series all interface in the same way and are totally interchangeable.

On all models, printing is bi-directional and logic seeking.

The printers have either nine or 18 needle printheads and features on all the models include built-in tractors, a six-part form capability and a close-in tear-off bar to cut form waste.

Optional extras include an automatic sheetfeed, a Centronics parallel interface, a single document inserter and multi-colour printing.

ISG Data Sales (CW), Unit 5, Wellington Industrial Estate, Basingstoke Road, Spencers Wood, Reading, Berks RG7 1AW. Tel: Reading (0734) 884666.

The Concept graphics display terminal.

Graphics for Concept

VECTOR graphics options compatible with Tektronix 4010/4013 graphics have been added to the Concept range of interactive display terminals.

The Concept GVT graphics display terminal also has the capability of producing graphics hard copy via the connection of a printer to the terminal's printer port.

Concept combines Ansi X3,64 functions, DEC software compatibility and switchable 80/132 column format with an extensive series of applications-oriented features that provide advanced text editing and data entry/retrieval capabilities.

Standard features include 43 programmable functions and windowing.

Shandell Systems (CW), 12 High Street, Chalfont St Giles, Bucks. Tel: (02407) 2027.

16-bit colour packages for desk-top micro

ZENITH Data Systems has introduced 16-bit colour Wordstar and SuperCalc packages to the range of software available for its Z100 desk-top microcomputer.

Colour SuperCalc shows negative amounts in the body text in red, protected entries in yellow and unprotected entries in white.

Operating under ZDOS, the 16-bit SuperCalc enables accountants, business owners, planners and engineers to answer the "What if?" and "Now what?" questions.

Text format can range up to 63 columns wide and 254 rows deep.

The Wordstar screen displays the text processing area below the menu. Users may select the colours of their choice for the menu and its background as well as for the text processing area and its background.

With a dual 8/16 processing capability, the Z100 operates on six colours.

Zenith Data Systems (CW), Bristol Road, Gloucester, GL2 6EE. Tel: 0452 29451.

5Mbytes on 5¼-inch disc

THE Micro-Magnum 5, manufactured by DMA Systems and available in Europe through Advanced Peripheral Products, is a 5¼ inch Winchester disc drive with a 6.75 Mbytes (5 Mbytes formatted) storage capacity in a removeable disc cartridge.

The drive employs a number of proven technologies that have been integrated for the first time, providing capabilities identical to those used in the Magnum 5/5 fixed/exchangeable drive unit.

Advanced Peripheral Products (CW), Gresham House, Twickenham Road, Feltham, Middx. Tel: 01-898 0036.

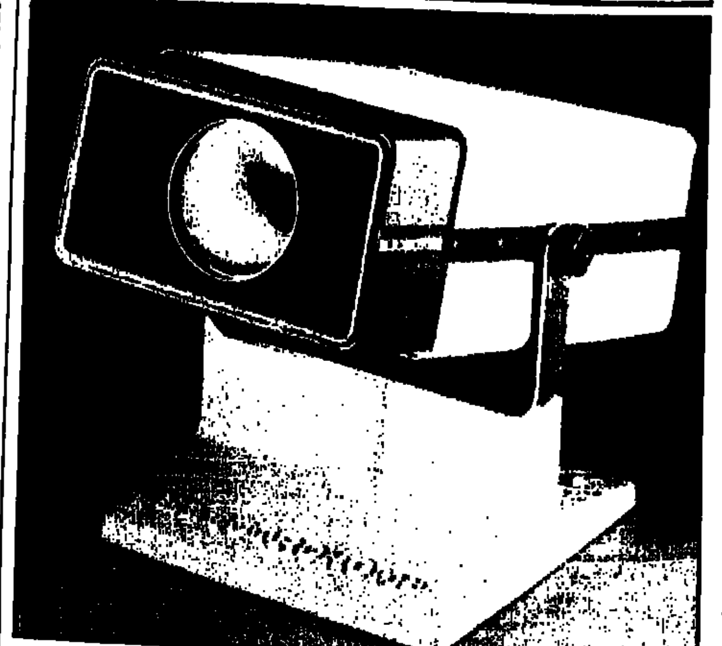
Building a workstation

THE Conti terminal table is the cornerstone of Martela's electronic office system of workstations. The keyboard section is adjustable in height and the screen section is adjustable in height and rake.

Total workstations can be built up using a range of different sized table tops, each of which can be linked to the others at varying heights, using simple connectors.

The co-ordinating print-out table is built to reduce vibration and can cope with paper feed from top, side or bottom.

Martela Contract Interiors (CW), 210 High Holborn, London. Tel: 01-831 8771.



The EDP 57 data projector.

Big screen displays

A DATA projection system announced by Reflex will display high resolution computer generated graphics on large screens. Known as the EDP 57, the projector accepts the composite video input signal available from most modern terminals or can be interfaced directly with most computers.

Designed for use in normal lighting the EDP 57 is suitable for training, sales and marketing presentations as well as software demonstrations to large groups, says Reflex.

It can be used with screens ranging in size from 1.2 metres to 3 metres (diagonal). Even with the largest displays, the projector's 20 MHz video bandwidth and precision optics ensure that complex data and graphics are presented with very high 600 line resolution. In addition, the projector's vertical and horizontal scan rates can be varied over a wide frequency range (45Hz to 80Hz and 11kHz to 25kHz respectively) to ensure full compatibility with all currently available computer systems.

The EDP 57 will produce sharp characters from computer outputs even with 132 characters per line, says Reflex. The projector has been introduced because ordinary projectors, designed for normal video applications, will suffer picture degradation on lines of text with as few as 40 characters.

The display is generated using a 100 lumen projection tube with a green P1 phosphor as standard. Other colours are available on special orders.

Although many different screen materials including flat and rear projection screens can be used, Reflex can also supply a 6ft diagonal, curved screen for viewing in higher ambient lighting conditions.

Reflex (CW) 44 Gallys Road, Windsor, Berks SL4 5RA. Tel: (075 35) 64327.

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Grand Metropolitan Information Services is the Computer Services subsidiary of the Grand Metropolitan Group. They are a large and progressive company providing information technology services for the various businesses in the group, which include worldwide luxury hotels, brewing, wines, spirits, food and leisure companies.

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Our client is a British Oil Exploration organisation with activities in three major areas – United Kingdom, S.E. Asia/Australasia and North America. The London computer services division houses a Prime supporting 20 terminals and a range of technical and financial applications.

They currently require an Analyst/Programmer with a good educational background and sufficient experience to take responsibility for database and technical projects.

You will also have the opportunity to work on additional areas including systems administration, user liaison and other technical applications.

Ideally your experience will include some of the following skills:

- ★ INFO
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For further information and an early appointment for interview phone Knight on 01-491 4706 quoting Ref: YY124.

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Our client is a leading management consultancy that utilises in-house data processing facilities to support both assignments and their own business administration.

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This opportunity will suit an adaptable person with a minimum of four years applications experience. Ideally, this will include BASIC or COBOL in a mini computer environment although training will be given if applicable.

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Screening and initial interviews will be held in London early/mid June and selected applicants and wives will have the opportunity to visit the Group's Headquarters in Kuwait.

For further details please contact Peter Henrick on 01-493 2937 days, or 01-390 1640 evenings/weekends quoting Ref. No. 9975.

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Further particulars may be obtained from the Registrar (AG/161/CW), University of Essex, Wivenhoe Park, Colchester CO4 3SQ, to whom applications (nine copies), including a curriculum vitae and the names and addresses of two referees, should be submitted by 15 June, 1983. (3752)

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AA

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The Automobile Association is very interested in talking to top level computer professionals with the relevant background in the following areas:

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For more information please ring Janet Chilvers or Sandra Hersh on the office numbers but if this is not convenient they will both be pleased to talk to you outside working hours. Janet can be found on 01-785 7615 and Sandra can be contacted on 01-458 6988.
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34 COMPUTER WEEKLY May 26 1983

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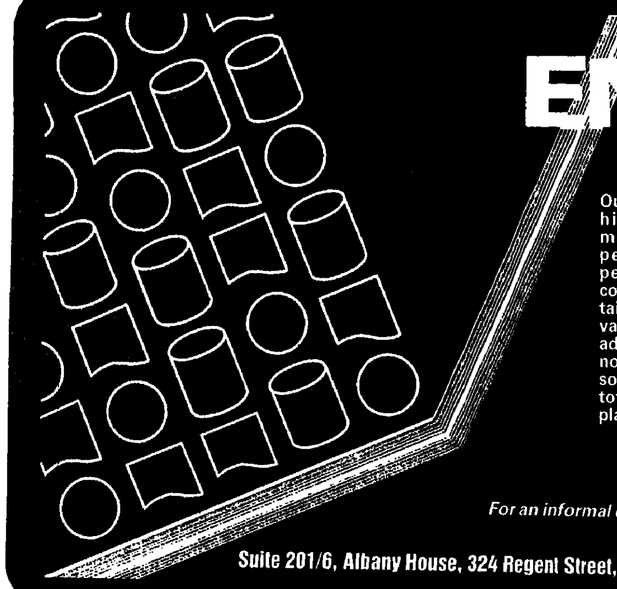

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(3821)

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(3808)

BOROUGH OF BARROW-IN-FURNESS
Borough Treasurer's Department

SENIOR SYSTEMS ANALYST/PROGRAMMER

AP4/5 £8,873-£9,325

Applications are invited for the post of Senior Systems Analyst/Programmer in the Computer Section of the Borough Treasurer's Department.
This new post has arisen due to an increase in the Council's computing activities. The post will rank second to the Computer Manager in a section of nine persons. The Council operates a Honeywell Level 64 Computer, disc-based system with Incoterm data entry and cash receipting terminals.
This equipment has now been in use for twelve months and conversion of the existing system is almost complete.
Applicants should have at least four years' experience in systems analysis and programming.
Experience of Cobol programming, Honeywell equipment and Local Government Procedures will be an advantage.
Starting salary will be commensurate with experience and qualifications.
Application forms are available from the Personnel and Management Services Office, Town Hall, Duke Street, Barrow-in-Furness, or telephone (0229) 25500, Ext. 219.
Closing date: Friday, June 10th, 1983.

D. G. B. Lyon
Town Clerk and
Chief Executive
(3744)

Town Hall
Barrow-in-Furness

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We are advising the company on these appointments and applicants, male or female, are requested to write in strict confidence, enclosing c.v., quoting ref. 230 to Douglas Atkin.

AMC Selection

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Tel: 01-403 0924

(3787)

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£12,000 P.A.

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The successful applicant must be able to demonstrate the ability to manage a computer operations environment and should have systems design and programming experience, preferably on ICL equipment. Additionally experience of on-line systems is a requirement.

Applications giving full details of age, qualifications and career state should be addressed to:

Administration Officer
BANKING INSURANCE AND FINANCE UNION
Sheffield House, 17 Hillside, Wimbledon SW19 4NL

Closing date for receipt of applications is June 6th, 1983.

(3742)

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The Campus, Welwyn Garden City, Herts

DEPARTMENT OF COMPUTER STUDIES
(Based at Elstree Way, Borehamwood)

LECTURER II

required with experience of commercial data processing preferably in micro and/or mini computers. Applicants with lecturing experience and teacher training, with preferably a knowledge of two of the programming languages, BASIC, PASCAL or COBOL.

Salary scale: £6858-£11,022 per annum (under review) plus £246 Outer London "Fringe" Allowance.

Assistance with removal expenses in approved cases.

Forms and further details from The Principal, de Havilland College, The Campus, Welwyn Garden City, Herts.

Closing date: Friday, 3 June.

(3682)

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We are looking for a system Programmer to join a team writing software for a service based on linked DEC 4190 computers, providing predominantly keyboard access to staff and students in the College and University. The Centre is involved with enhancing both the local service and its associated networking facilities and is seeking a programmer with an interest in operating system software, telecommunications or compiler maintenance. A relevant degree or equivalent professional qualification or experience is required. Salaries will be paid on academic related scales £6560 to £9370 or £9375 to £11105 plus a London Allowance of £1188, according to previous experience and qualifications. Applications (no special forms) including full c.v. and the names of two referees to Computer Manager, University College London, Gower Street, London WC1E 6BT, by 31 May 1983. Further information can be obtained from the above address or by telephoning 01-388 6721.

(3670)

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(3818)

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COMPUTING OFFICER (AP2/3)
Ref. No. APC 15/83

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(3828)

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(3827)

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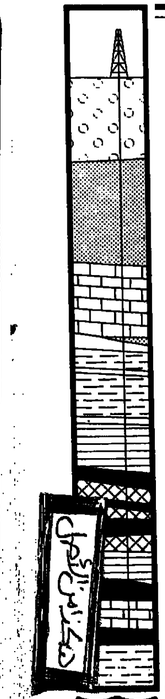
SECURICOR
583 Fulham Road, London SW6 5UA

(3777)



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Please write with full details of qualifications and experience, quoting reference number FY.82, to: Mrs. Christine MacCarrick, Recruitment and Placement Branch, The British Petroleum Company p.l.c., Britannic House, Moor Lane, London EC2Y 9BU.

(3784)

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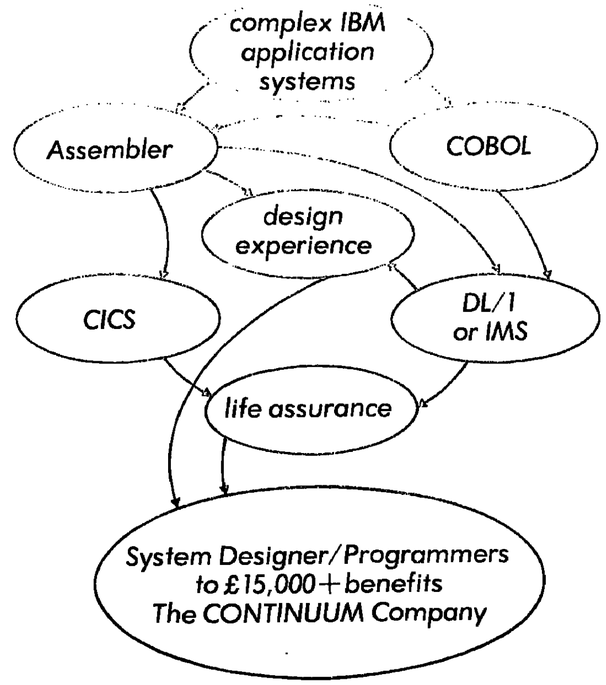

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Breathtaking, yes.

But also **impossible** without the flexible integrated computer systems which are at the heart of our Administration.

This enables us to react swiftly to all market and business needs.

And with so much extra activity sweeping through the company – it means that we now have need for more top systems professionals to join our already sizeable and formidable team:

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We are looking for experienced systems designers and project leaders **at all levels:**

SENIOR SYSTEMS CONSULTANTS
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SENIOR SYSTEMS DESIGNERS
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SYSTEMS DESIGNERS
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The job given to you would be determined by your ability, potential and the nature of your experience. Our systems team get firmly involved in a wide range of business activities. The current project list, for example, contains immediate product development work – including our recently launched life and mortgage products, our plans for the financial services and international markets, an on-line enquiry system for what is one of the largest life assurance databases in the industry, a micro-computer and software programme for Hambro Life's top salesmen, a personnel project and a mortgage accounting system.

Qualities

You should be a graduate with experience in large scale systems and a record of successful implementations which reflect the high qualities required.

Systems Designers should be good at systems analysis, and user liaison, while the Senior Consultants are likely to be, at present, project managers, good at co-ordinating a multi-disciplined team (you should also be actively involved in design).

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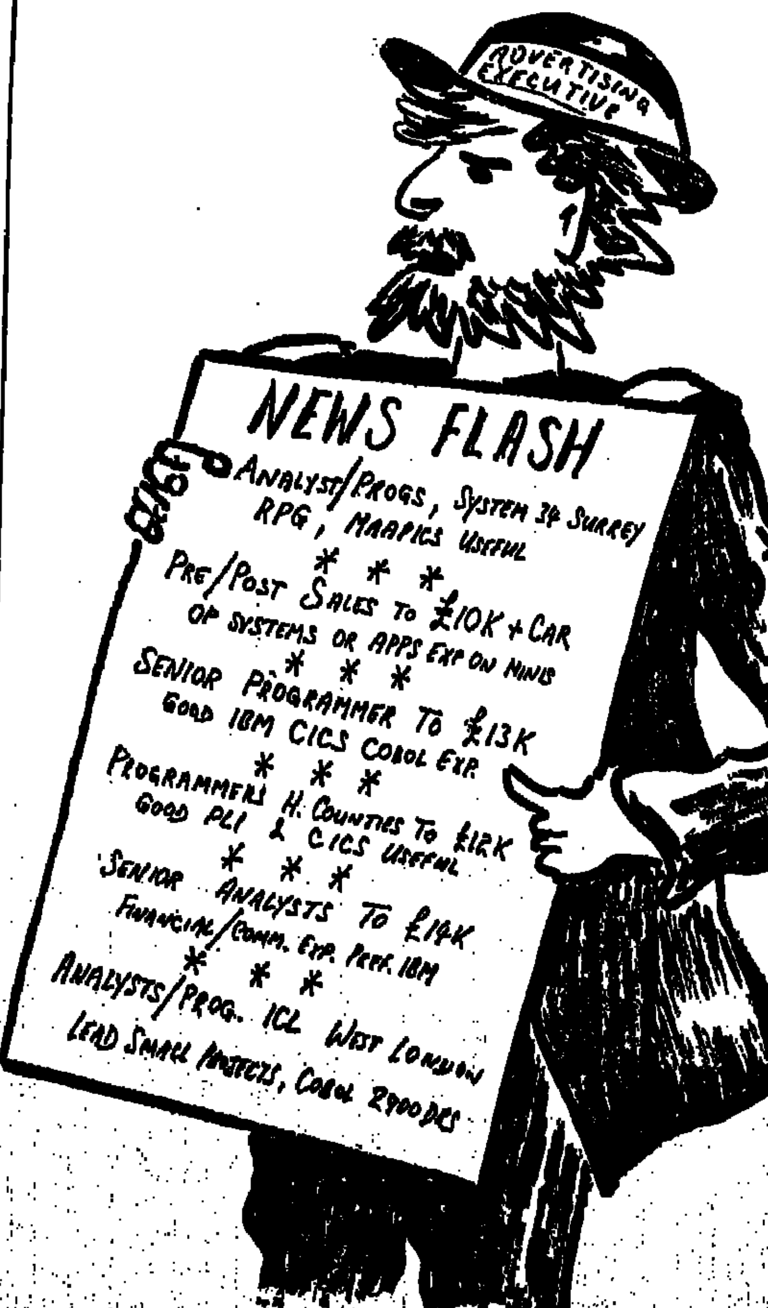

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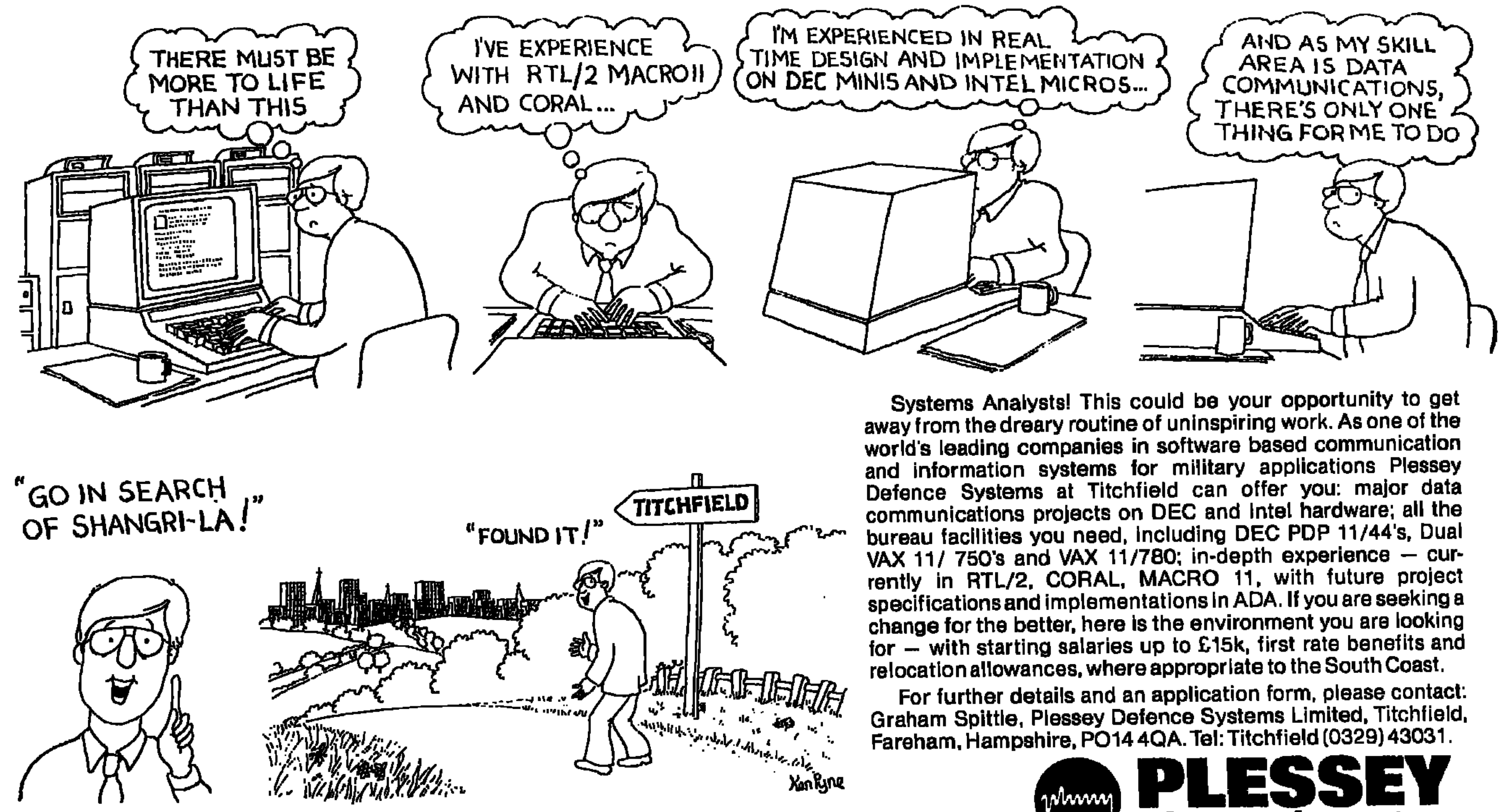

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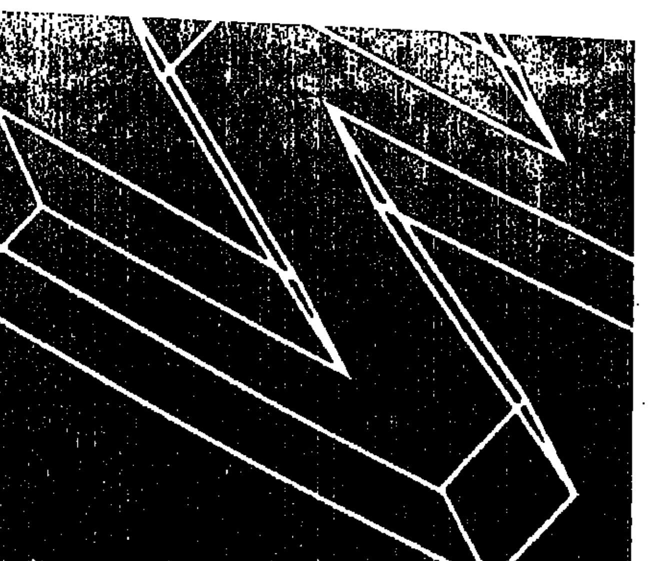

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CAD Specialist and CAD Engineer

To advise on the selection and support of existing and future CAD program for use both on internal DEC VAX 11/780s and by external bureaux for applications such as: PCB design, microwave component design, antennae design, circuit analysis, logic simulation, stress analysis and mechanical draughting. The Engineer will assist the CAD Specialist in all these activities. Qualifications for both appointments: a degree in Physics or Electrical/Electronic Engineering, experience in the development of electronic equipment, specific knowledge of some of the areas mentioned and programming ability in FORTRAN and other languages. Refs. TS1 and TS2.

Cross Software Support Specialist

To advise on, implement and support cross software such as Coral, RTLZ, Context and cross assemblers running mainly on DEC VAX 11/780s and software support tools such as Ada cross compilers, AS SE, automatic documentation, configuration control software etc.

Qualifications: degree in Computer Science, Maths, Physics or Electronic Engineering, plus in-depth understanding of compilers and other support software as specified. Ref. TS3.

Senior Software Design Engineer

To work on the software system design of complex defence systems, particularly EW systems.
Qualifications: degree in Electronic Engineering or Physics plus several years' experience in the development of software for EW systems, some of it at team leader level. Familiarity with formal documentation, RTLZ, Coral and Mascot. Ref. TS4.

Senior Software Engineer

To develop software for complex defence systems, particularly EW systems.
Qualifications: degree in Electronic Engineering or Physics plus several years' experience in EW software development. Familiarity with formal documentation, RTLZ, Coral and Mascot. Ref. TS5.

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To provide consultancy services for the Technical Software team in the running of three or more DEC VAX 11/780s and a DEC PDP 11/44. Additionally, to introduce enhancements and support systems software.
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OPERATING SYSTEMS DEVELOPMENT GROUP

The following positions are for the VS Operating Systems Department which is responsible for the design, development and maintenance of the operating system, which is virtual memory, multi-tasking system for the 32-BITVS business computer · one of the products that has made Wang the industry leader in interactive data processing and office automation

1. Working with the Released Product Development Group, the successful candidate should possess a solid background in operating systems principles as you will be responsible for maintaining and/or supporting them and providing assistance in finding system problems and developing solutions.

2. Working with the Released Product Development Group the successful candidate should be well versed in operating systems principles and should possess both operating systems development and support experience. As you will be working on ways of making the operating system more supportable and tolerant of errors you should possess a strong systems programming background with OS emphasis.

3. Working for the Internal Development Group you will be responsible in assisting in the design and development of the VS Operating Systems kernel, and the successful candidate should have extensive assembly language experience and should be well versed in operating systems issues, especially those that relate to virtual memory, process control, memory management, etc.

4. Working for a new Product group developing a new generation of CPUs. The successful candidate should understand computer architecture and CPU hardware design and a solid background in operating systems design and development. Some of the issues that will be addressed in this group are very small systems, multiprocessing, high availability virtual memory, disk subsystems and co-operation with intelligent I/O processors.

COMMUNICATION SYSTEMS NETWORKING GROUP

Interconnect Systems

7. Working on interconnect projects the successful candidate should possess expertise with IBM telecommunication technology and IBM operating systems.

8. Working on the development of emulations between Wang hardware and other vendors, the successful candidate should possess knowledge of of telecommunications on 3270, 2780/3780 and/or async with assembler language programming ability.

TRANSPORT SYSTEMS

9. Working on designing, implementing and testing communication software for Wang products to support WangNet, X21/X25, Teletext, leased and switched circuits, and network monitors, the successful candidate will possess communications experience with HDLC, X25 and/or carrier sense multiple access with collision detection. Experience with microprocessors, operating systems and assembler or PL/M is necessary.

NETWORK SYSTEMS

10. You will be applying your expertise to the following projects:- Communication access methods, file transfer, remote terminal attachment, configuration and control of network services for WangNet, and enhancement of network management architecture. The successful candidate must have a track record in one or more of the above areas and experience with assembler and/or PL/M, PL/1.

DISTRIBUTED SYSTEMS DEVELOPMENT GROUP

This group is currently designing and building an exciting new distributed processing system for the next generation of Wang office and data processing products. Planned as a building block, this system will combine a networking operating system with a distributed access relational database management system to provide state-of-the-art solutions to data distribution, retrieval, and archiving, all in the WangNet environment.

11. Participating in the design and implementation of a fully distributed network operating system you will be working on file directory management, user authorisation and security issues, network topology control, data archiving systems and network node initialisation. The successful candidate should possess substantial experience in the areas of operating systems development, networking or distributed processing.

12. Assisting in the database and data management area, you will be working on storage device control, index file servers, query decomposition and processing, and transaction and recovery systems. The successful candidates should therefore possess experience in one or more of the above areas.

DISTRIBUTED OFFICE SYSTEMS GROUP
(VS/PC Distributed Systems Development)

13. Working on the design and development of distributed systems using Wang VS and WPC systems in support of resource sharing, distributed application development, distributed database access and distributed query systems, the successful candidate should possess a systems engineering background with fluency in assembler and a working knowledge of structured and unstructured file systems and relational databases, operating systems, network architectures and distributed database systems concepts.

SPECIAL SYSTEMS DEVELOPMENT GROUP

14. This new group has been set up to provide operating system enhancements to major Wang users. The successful candidate should possess an interest or past experience, with the definition and development of 'special' or 'non standard' systems and experience should include operating system, language, or communications development.

OFFICE SYSTEMS DEVELOPMENT GROUP

15. Working with a small creative group you will be responsible for developing state-of-the-art database products including query processing, report generation, message/calendar processing and database access tools. The successful candidate should possess substantial exposure to micros, assembler programming and experience of office automation systems. Knowledge of Z80 and 8086 is desirable.

BENEFITS

These career positions for Principal (7 years+ exp.) and Senior (5 years+ exp.) Software Engineers will be based at their Lowell, Mass. headquarters and provide exceptional opportunities for talented and professional software engineers to expand and continue their careers working in the heart of America's East Coast high technology belt.

Apart from a comprehensive relocation package, for you and your family, Wang offers one of the best benefit programmes in the industry; this includes profit sharing, stock plans, company paid dental, medical and life insurance, etc.

To apply for any of the above positions please send your C.V. to Malcolm Seaton-Wood, CRS and EJ Rhodes, at the address below and indicate the position(s) of interest. Please also enclose a summary of your career accomplishments and future objectives. Our clients will be interviewing for these positions, in London, in early July.

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If this is the sort of challenge which appeals to you, you are probably the right sort of person for the job. In terms of experience, the company has installed a Honeywell mainframe and a knowledge of the GCOS operating system and COBOL would be advantageous. Sound commercial experience however, coupled with the right temperament, constitutes relevant experience.

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We are seeking good calibre staff for three key positions in order to maintain and enhance this high quality service.

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We require an experienced Data Processing Professional to take responsibility for all operational aspects of our department. The main responsibility will be:

- Providing real-time facilities to the users in our City and Barking offices. Currently, we have a network of 100+ VDUs and 20 printers in those locations and in addition we will be providing on-line facilities to clients throughout the UK later this year.
- Maintenance and operation of all computer equipment.
- Management of our team of operators, technical support and client service personnel.

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A starting salary of about £15,000 p.a. may be anticipated.

SENIOR COMPUTER OPERATOR

We are looking for a responsible person with at least two years' experience of operating computers.

He/she will be required to do shift work and be capable of taking full responsibility of the computer network whilst on shift duty.

The successful candidate will work with either IBM mainframes or DEC minicomputers. A knowledge of VM D.O.S. VSE and/or RSTS will be an advantage.

Salary will relate to experience and is likely to be in excess of £7,000 plus shift allowance.

PROGRAMMER/SENIOR PROGRAMMER

For this post, we are looking for a programmer with at least two years' experience. A working knowledge of Basic + or Basic + two will be an advantage.

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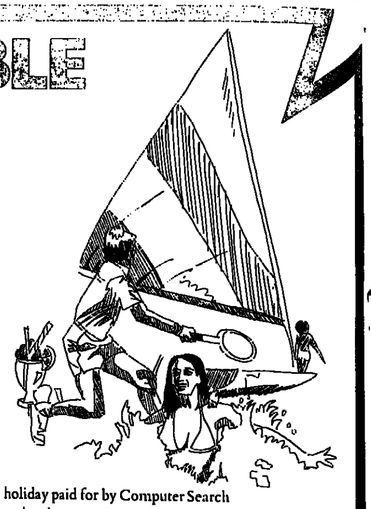

Rules:

Computer Search (Contracts) Limited will hold a draw at the beginning of November, the winner will receive a holiday paid for by Computer Search (Contracts) Limited (flight, food, accommodation for two people, two weeks in either Italy or Morocco to be taken between December 1983 and March 1984 inclusive). To qualify, you must have worked through us for any period of time between 1st April 1983 until 31st October 1983.

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In the past, we have found that an OR or Mathematical Modelling background can provide useful experience for our area, and a degree, whilst preferred, is not essential.

Support

We are seeking **FORTRAN** based Programmers to provide Sales Support to new and existing Clients. This will involve problem definition and problem solving, as well as an element of public relations. There is also a need for a Support Team Administrator to ensure co-ordination of support activities in a timely fashion. This position may well suit a less experienced individual as a first step in a career in this field.

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Again, we need a **FORTRAN** fluency in individuals capable of contributing to the development of new software products, as well as assisting, when necessary, in support activities. An **ASSEMBLER** knowledge would be a useful addition, as would OR related experience.

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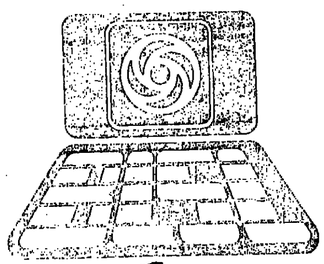
To promote and sell our Route Planning Package VISIT to Companies requiring cost effective and controlled transport systems. A sales background or experience within the transport industry or vehicle planning would be advantageous, but is not essential. Obviously, a communicative and personable individual is required.



It must be stressed that our philosophy is one of flexibility and the technical positions could suit a variety of backgrounds. However, they will appeal to those seeking involvement with innovative micro based systems and who would like to develop further into this exciting area.

All of these positions offer variety and challenge, including opportunities for short assignments abroad. We can provide a good salary and benefits package, including attractive relocation assistance, where applicable.

If you would like to be considered, please contact **Martin Stainthorpe** on **021-236 3781** (24 hour answering service) or submit a detailed CV to him at the Birmingham office.

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London and Home Counties

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Principal & Senior Telecommunications Consultants £15,000-£20,000
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Soar Division

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£9,468-£10,590 p.a.

The Division will shortly be installing an ICL 2958, operating under VME 2900 within a regionally distributed system running both local and regional network applications.

The successful candidate will be responsible, with a small section, for the initial investigation and feasibility of local systems, systems analysis and design, programming, full systems testing, implementation documentation and user support of package/terminal systems.

Candidates should preferably be educated to degree level in an appropriate discipline and have a minimum of five years' experience in at least one programming language and project development in an analytical capacity. A working knowledge of VME 2900 and related SCL would be advantageous.

Some assistance with relocation expenses may be available in certain cases.

For further details and an application form ring Mike Craven, or contact the Personnel Department, Severn-Trent Water Authority, Soar Division, Gorse Hill, Anstey Lane, Leicester. Telephone Leicester 352011, Ext 120 between the hours of 9 am and 4 pm. Please quote reference FS9 when applying.

The closing date for the return of application forms is 13th June, 1983.

This post is open to both men and women. (3812)

SEVERN TRENT WATER

LIVERPOOL POLYTECHNIC
COMPUTER SERVICES DEPARTMENT

ANALYST/PROGRAMMERS

£7,791-£8,325

A number of Analyst/Programmers are required to assist in the provision of a comprehensive computing service to the Polytechnic, based on DEC-20 and VAX systems. Over 150 terminals are supported, distributed over 12 sites. These posts offer varied and interesting work in the following areas:

1. **Applications:** Support, development and advice on a large library of applications software and a variety of languages.
2. **Systems:** Support of TOPS-20 and VMS operating systems, networking, micro systems, etc.
3. **Administrative Computing:** A team is being set up to develop an Interactive Management Information System for the Polytechnic.

Applicants should have, or expect to obtain, a degree or equivalent qualification. Applications are particularly welcomed from those who expect to graduate in Computing Science this year.

For further particulars and an application form, contact the Personnel Officer, Liverpool Polytechnic, Rodney House, 70 Mount Pleasant, Liverpool L3 5UX. Tel: 051-207 3581 Ext. 2516.

Please quote Reference No. LP 590.

Closing date 14 days from the appearance of this advertisement.

The City Council is an Equal Opportunity Employer and welcomes applications irrespective of race, sex, marital status or disability.

(3843)

MICRO PROGRAMMER

Up to £10,000 plus Bonus — **LONDON**

Swallow Business Systems is a rapidly expanding new company, developing and marketing products for electronic banking and is supported by the NCC and a major UK clearing bank to exploit fully the commercial opportunities of microcomputer based applications in this field.

This key position will appeal to a competent imaginative individual with the self-discipline and maturity needed to work in a small company environment. The successful applicant will be of graduate calibre, practical and capable of developing new products on his/her own initiative. The following skills are required:

- Pascal, Basic and Assembler programming with a knowledge of CP/M, CP/M-86, PC-DOS or UNIX.
- Experience of microcomputer applications, systems design/development, networking and databases.
- Expertise in software development, testing, debugging, implementation and documentation.
- Ability to provide client technical support and training.

The company's policy is to recruit the best and offer financial reward and responsibility on performance. The potential exists within the position to develop a wide range of technical and managerial skills.

If you feel that your skills and aspirations meet our needs, please write to Chris Robinson, Swallow Business Systems Ltd., London House, 271-273 King Street, Hammersmith, London W6 9LZ.

(3753)

POLYTECHNIC OF THE SOUTH BANK
Borough Road, London SE1 0AA
Department of Electrical & Electronic Engineering

SYSTEMS ANALYST/PROGRAMMER/RESEARCH ASSISTANT

Due to the recent expansion of its postgraduate teaching, the Department of Electrical and Electronic Engineering now requires an analyst and a programmer to maintain and write software systems in the areas of CAD and Knowledge-based systems. The successful candidate will work in close co-operation with the academic and research staff of the department; and will undertake program advisory duties for the students.

A vacancy also exists for a Research Assistant to work for a PhD degree in the areas outlined above. The successful candidate will be expected to undertake some teaching duties.

The department has currently a VAX 750 system running VMS a PdP 11/34 running UNIX, and numerous micro-computer systems. It has access to the Polytechnic facilities which include a Dec-system 10 and three other VAX systems.

Applicants should hold a degree in computer science or engineering and should have some experience relevant to the requirements outlined above.

Salary will be in the range:

Systems Analyst	–	£7,767 – £10,824 p.a.
Programmer	–	£7,767 – £8,861 p.a.
Research Assistant	–	£5,819 – £6,294 p.a.

(inclusive London Allowance)

Further details and application forms are available from the Staffing Office. Tel: 01-928 8989 Ext: 2355. (3797)

MID WARWICKSHIRE COLLEGE OF FURTHER EDUCATION
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Salary within Burnham F.E. Scales (£5365-£9267). Starter point dependent upon qualifications and industrial/commercial experience.

Further details and application forms available from the Principal's Secretary (s.a.e. please). Completed application forms to be returned within two weeks of the appearance of this advertisement. (3760)

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Unique range of hardware both here and in Europe for a major US manufacturer. Superb future prospects for bright engineers especially those with some COMMS experience.

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Adv. 1276

DATA PROCESSING MANAGER—MUMPS W. END to £16000+CAR+FREE holiday

Travel company URGENTLY requires a Computer Manager with MUMPS experience for their multi-DEC environment. You will either be in a management position at present, or a Senior Analyst/Programmer looking for advancement in a very demanding and interesting position. A self-starter, capable of fully developing Commercial/Travel systems from scratch, will be offered an excellent salary, job satisfaction, free holidays and generous relocation assistance where appropriate. Apart from knowledge of MUMPS, the most essential qualities for this responsible position are a keen mind, enthusiastic attitude, and ability to understand customer requirements. REF JH/CW.

PL/1 PROGRAMMERS CENTRAL £7500-£12000

Programmers are required from Junior (12 months experience) to Senior (Lead Programmer) level to work on IBM 3033 under OS/MVS with IMS CICS. You will be working on "across the board" Commercial applications in an on-line Database environment for this large Services Organisation, which offers excellent career advancement as well as technical training. Any ASSEMBLER knowledge would be useful although not essential. REF SR/CW.

MINI & MICRO PROGRAMMERS SURREY £7000-£12500

We currently have five clients with a total of nine positions in the Surrey area. If you have a minimum of 18 months' COBOL or BASIC experience on any mini or micro please contact us NOW. These vacancies offer an excellent opportunity to broaden your D.P. experience on new machines and become more involved in analysis work on Commercial systems. REF SF/CW.

HONEYWELL LEVEL 64 SYSTEMS & PROGRAMMING MANAGER To £13000 TECHNICAL SUPPORT MANAGER OXFORDSHIRE To £10000

Following a Consultancy study of their D.P. systems, our clients are implementing a major redevelopment of all systems. A TP and Database distributed environment is planned with two key people to control it. A Systems & Programming Manager is required to take control of a small but expanding department, and a Technical Support Programmer to cover Operations/Programming support. Candidates for both positions should have a sound knowledge of LEVEL 64 with TDS. In addition experience of BTNS, TAILOR, TDS GEN is required for the Tech Support position. REF MN/CW.

PROGRAMMERS & ANALYST/PROGRAMMERS CITY To £10000+

Major banking organisation are currently expanding and are looking for 12 months + COBOL experience. Present kit is IBM 4300 under DOS/VSE. CICS training will be provided and a Database is soon to be introduced. Excellent career prospects for ambitious people and a very attractive bonus scheme on top of the normal bank benefits.

MUMPS, MUMPS, MUMPS LONDON To £11000

We are urgently seeking MUMPS Programmers and Analyst Programmers for various clients in the London area. Requirements and positions vary so please call for full details. REF JH/CW.

PRE- & POST-SALES SUPPORT CENTRAL To £12000

Our client, a large Software House is seeking a Senior Database Analyst Programmer and Analyst Programmer. The job involves the design (through to implementation) of on-line Database systems and you would be working in small professional teams covering various projects. Although not essential, knowledge of FOCUS would be very helpful. An IBM MVS/TSO background is preferred, with COBOL and/or ASSEMBLER languages. These positions offer considerable career opportunities within a sound technical environment. REF SR/CW.

ICL PROGRAMMERS LONDON & S.E. To £15000

We have various excellent career opportunities to work for either Software Houses or End-Users in COBOL on 2900 kit of all sizes from 2903 to dual 2966s and larger. Clients are particularly seeking VME/B skills with TP and/or Database experience. Please call for details. REF MN/CW.

PROGRAMMERS & SYSTEMS PROGRAMMERS SUSSEX COAST To £11500

If you want to get involved in the large scale development of Communication Systems then this will interest you. Our clients, a multinational organisation, are seeking able, self-motivated people to fill the above positions. You will have had 3 years' Real-Time programming on MICROS, and any exposure to INTEL, VIDEOTEX OR TELETEX would be a definite advantage. The employment package includes relocation assistance and usual large company benefits. REF SF/CW.

SYSTEM 38 ANALYST/PROGRAMMERS LONDON To £15000

Two positions exist with this expanding Manufacturing company. Exposure to RPG3 and MAAPICS is preferred, but for the Senior position man-management potential is essential. At least 3 years' GSD experience is needed for the other position (to £11600). Excellent career prospects and benefits package.

PDP TO IBM MIDDLESEX £9000

Established company utilising PDP 11/44, RSTS/E, offers opportunity to work on an IBM Mainframe to a Programmer with solid BASIC + 2 background and some systems experience. A mature attitude with an outgoing personality and sense of humour would fit in well with their development team. Perks include subsidised licensed restaurant, discount on products and bonus scheme. REF JH/CW.

MVS COBOL MIDDLESEX £8000 to £11000

This major Computer Services Company has several vacancies at the Analyst Programmer level and will train Programmers in Analysis techniques. They run various large IBM mainframes (with a 3081 recently installed) and require upwards of two years OS COBOL on any applications. The company is fully committed to the development of CICS systems and ANY TP or Database experience would be advantageous, although full training will be given where necessary. Minis and Micros also play a large part in the work, and associated exposure to these would also be helpful. Prospects are excellent, and large company benefits will apply. REF SR/CW.

WANG VS ANALYST PROGRAMMER N.W. LONDON £9000-£11000

Here is a great opportunity to use your experience to the full with this rapidly expanding Commercial Business Systems company. This company are seeking an enthusiastic Analyst Programmer to cover all aspects of installing computer systems. The work is interesting, varied and involves all aspects of systems development, including working with clients from feasibility through to implementation. You will need a minimum of 12 months' WANG VS experience, using either BASIC or COBOL. An excellent remuneration package is offered together with very good career prospects. REF SF/CW.

UNIVAC ANALYST PROGRAMMERS KENT To £11000 + mortgage

This Financial establishment is currently developing systems of 1100 kit using TIP/DMS, and requires experienced 1100 people to join their team. Systems are all TP/Database, using a 150-screen network. Interesting work, with excellent career prospects. Minimum of 12 months' RPG2 experience required.

RETRAIN TO RPGIII CITY To c£8,000 + BENEFITS

A Bank in the City have recently upgraded to System 38 and require a competent RPGII Programmer to retrain. All normal bank perks are available and this position has sound career prospects. Minimum of 12 months RPG2 experience required.

ANALYST/PROGRAMMER SURREY £8000-£11000

DEC PDP 11 site using BASIC + under RSTS/E is seeking experience of Commercial Systems for position involving development of Sales Marketing Systems. You will be either a DEC Analyst Programmer, or a good Programmer ready for Analysis and responsibility.

IBM SYSTEMS ANALYST CENTRAL To £11000

This International Organisation require an Analyst with a technical background (COBOL, CICS, DL/1 used on IBM 4300 under MVS) of around 3 years' experience of Commercial systems. The position would suit a good Programmer or Analyst Programmer wishing to progress into Analysis without losing their technical involvement. Large company benefits and a progressive career path exist for a go-ahead person in this well organised D.P. department. REF SR/CW.

MICRO ANALYST PROGRAMMER CENTRAL LONDON c£8500

Our clients, a household name in the Entertainments Industry, are expanding their D.P. facilities and are looking to recruit a responsible Analyst Programmer. They currently run a large network of micros, and the successful applicant will be involved in the development of new systems, improving existing systems, evaluating new software and generally assisting in the day-to-day running of the network. You should have 18 months' general systems experience gained in a MICRO BASIC CP/M environment. A challenging position, offering excellent salary and benefits include STL and free lunches. REF SF/CW.

HONEYWELL SYSTEM SOFTWARE ENGINEERS BERKS To £10500 + car

A Software Engineer is required to install and maintain LEVEL 66/DPS8 systems. Previous S/W engineering experience is not necessary but applicants should have good GCOS, TDS/IDS/DM4/TP skills, preferably with GMAP. REF MN/CW.

CONSULTANTS VARIOUS AREAS £ VERY GOOD

We continuously recruit for a number of established Software houses who are always interested in sound RPG2/3 and COBOL experience. The work is hard but varied and the rewards are high. You must have designed at least one system. Please call for further details.

DIBOL (RETRAIN COBOL) MIDDX/BERKS £7000-£10000++

Two companies are looking for DIBOL Programmers from 12 months, exp. to Senior Level to work on either PDP or VAX equipment. The VAX installation requires a degree and personable manner for client contact, to be part of a strong Systems Development Team working on a Hotel Reservation System. Excellent prospects into analysis or pre/post Sales Support. The PDP site is looking for a Programmer and Senior Programmer with experience of commercial interactive systems. Relocation assistance available. REF JH/CW.

IBM PROGRAMMERS & ANALYSTS ESSEX £7500-£13000

Our client, a Financial Institution, requires staff form 18 months' programming experience to Senior Analyst level where project experience from start to finish is necessary. Insurance or Financial applications would be preferred, and knowledge of ANY TP monitor would be advantageous. Kit used is IBM 303X range, under MVS in a full on-line environment. Full relocation, free insurance, pension, lunches are some of the benefits provided by this large organisation. REF SR/CW.

HONEYWELL LEVEL 64 STAFF LONDON/S.E. To £10500 + perks

You're GOLD DUST once again! (But then you always were.) We have eight positions currently registered, from Programmer to Senior Programmer or good Analysis Programming skills. Users are all using TDS (some with IDS) in Manufacturing, Financial and Commercial environments. Call for details. REF MN/CW.

SOFTWARE ENGINEER RSX11M WEST END £££££Excellent + car

International company is seeking a SOFTWARE ENGINEER to develop RSX11M software and interface with VIDEOTEX. Work also involves faultfinding, resolutions and implementation. Travel to Europe and the States will also be involved.

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Computer Professionals

4, Kendrick Mews, London SW7 3HG Tel: 584 8790

Systems Engineers
London Based — £11-17,000

A large consultancy/systems house needs staff with research or defence project experience in the areas of navigation, signal processing, underwater technology, automotive engineering, electronics or communications. Candidates should be knowledgeable about good quality software and systems design. Ref 2605/A

RPG II/III Experts
West London — £13-15,000

Hugely successful systems organisation needs real experts on RPG II or III to lead various projects. Applicants must have the personality to complement their above average skills to be offered our client's above average rewards and opportunities. Ref 2605/B

Systems Analyst
Herts — £9-12,000

A well-established distribution organisation requires two analysts with at least two years' experience of commercial systems. For the more senior position a background in programming and experience of accounting systems is desirable. Attractive location, good salaries and relocation assistance offered. Ref 2605/C

CORAL Programmers
North Hampshire — £8-14,000

Expanding software house specialising in real time software development in the military and industrial systems field requires additional staff. For the junior positions six months' programming experience using CORAL is essential. More senior candidates will also need experience of GEC 4000 or DEC equipment. Ref 2605/D

Systems Designers/Programmers
Surrey + Overseas Possibilities — Up to £12,000

Additional staff with an Honours Degree in Computer Science or related discipline are required to develop software and systems for non-stop applications including reservations and communications. Fluency in Fortran or Pascal on PDP 11/VAX is essential and knowledge of an assembler is desirable. Ref 2605/E

Analyst Programmers
London and West — £7½-10,000

A systems house specialising in the development of sophisticated systems for the finance sector wishes to recruit keen programmers to be involved in a range of activities encompassing systems design, programming, consultancy and user support. A minimum of 12 months' on-line programming experience is required and a mature, flexible and professional attitude is of prime importance. Ref 2605/F

Real Time Professionals
Surrey Border — £8-18,000

High technology systems house needs programmers, designers and consultants to work on the development and implementation of high reliability, fast response defence, information and communications systems. Candidates must be educated to degree level and possess at least two years' real time systems experience. Knowledge of Argus or VAX would be of particular interest. Appliants should have the personal qualities to succeed in a consultancy environment. Ref 2605/G

Analyst Progs & Systems Progs
North West London — £11-14,000

Our client is the UK subsidiary of a major US systems house specialising in on-line systems on Tandem computers. Due to a growing order book they need additional staff to work in the areas of Electronic Funds Transfer, Message Switching, Reservation Systems and Videotext Services.

To apply, Analyst Programmers must have four years' experience in Interactive Transaction Processing, Database or Retail Banking Systems. Systems Programmers — at least two years on one of the following: Message Switching Systems; Communications Software; Operating Systems Development; Device Handler Develop ment. Ref 2605/H

IBM Project Manager
West London — £16-19,000

A consultant is needed with absolutely top-class IBM project design and management skills. Substantial experience of CICS and DL1 as applied to a range of commercial applications is required with the interpersonal skills to deal with clients. Ref 2605/J

Police Systems
Berkshire — Approx £14,000

Project leaders and programmers with experience of Police or similar command and control systems are needed to meet new orders obtained by our client. Knowledge of Ferranti computers is necessary for the senior position and advantageous for the others. Excellent employment conditions and career prospects. Ref 2605/K

Analyst Programmers
London/Overseas — Up to £12,250

Systems house with worldwide client base needs Hewlett Packard experts to work on bespoke versions of complex order processing software. Specification and implementation can be overseas -- development in London. Five years' experience, the last two on HP 3000 is needed for these positions. Ref 2605/L

Electronics Engineers
Surrey — Up to £12,500

Vacancies exist for candidates with a qualification in electronics and at least two years' software development experience to work on complex defence systems. Microprocessor or CORAL experience advantageous. Excellent benefits and relocation offered. Ref 2605/M

Micro S/W Development
Beds — £9-16,000

Vacancies exist for graduates with a minimum of two years' Assembler programming experience to join teams developing microprocessor-based P.O.S. systems. Software design experience and knowledge of BASIC or PASCAL would be advantageous. Our client offers first-class career prospects. Ref 2605/N

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For further information, write to Computer Professionals quoting the advertisement reference no; alternatively phone Isobel Bruce or David Futcher on 01-584 8790.

MANAGEMENT & EXECUTIVE SELECTION

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With a unique system design, superior technology and personnel, Tandem has every reason to anticipate continuing success and aggressive growth in the future.

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Training is on-going but is initially for two months in Germany/America. In addition, earnings will be £12K-£14K first year, a 2 litre car is provided and stock options, PPP, 24 days holiday are just some of the excellent benefits offered.

Tandem offer a genuinely interesting and rewarding career. To discuss this opportunity call Chris Bond or Phil Jolsce on 01-637 9611.

TANDEM

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MANAGEMENT & EXECUTIVE SELECTION

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To sell computer related equipment/ electronics to industry, banks and scientific research establishments. Experience of micro processor base equipment or data communications particularly useful.

SW London — £13,000+
Selling technical software and engineering consultancy services.

Kent — £13,000+
Technical sales experience required, communications systems of particular value.

SE England — £25,000 package
C.O.M. experience of particular relevance, to sell hardware and associated software.

Middx. — £30,000 on target
Sales Manager to motivate and manage existing sales force. Should be knowledgeable about small computer systems with successful experience in selling them – preferably in turnkey packages.

Edinburgh/ Staines — £23,000 on target
Experienced in selling small (micro or mini) computers preferably as turnkey systems and preferably to small companies, professional offices or lone traders.

Nationwide — £25,000 package
Young expanding company with a unique market position to sell graphics and CAD/CAM equipment based London, Home Counties, Midlands and the West.

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SYSTEMS ANALYSTS

M.K. ELECTRIC are shortly changing to an IBM 3083 and are converting systems to MVS.

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Applicants should have at least three years' analysis experience gained in an IBM environment, plus experience in 'on line' systems development and data base techniques.

Candidates should be flexible and be able to work both as a team member and Project Leader, depending upon requirements.

In addition, applicants should be educated to at least 'A' level standard with a self-motivating approach to projects and possess the ability to communicate effectively at all levels. Previous programming experience, particularly COBOL, would be an advantage.

We would expect the person appointed to reside within reasonable daily travelling distance.

Preferred age range 25-40 years.

We can offer an attractive salary and the normal range of fringe benefits associated with a large company.

Please apply in writing, giving details of age, qualifications, experience and current salary to:

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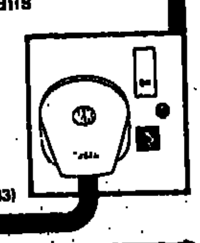
Shrubbery Road
Edmonton, London N9 0PB
Tel: 01-803 3355 Ext. 15



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ANALYST/PROGRAMMER

£18,000-£20,000 tax free

A leading Saudi Arabian software house based in Jeddah wishes to expand their operations with the appointment of an Analyst/Programmer with +IP3000/MPE IV experience and preferably IBM experience operating under DOS/VSE-COBOL-CICS.

Additional benefits include free accommodation, 30 days' leave, car, medical, air fares, etc. Interested candidates should forward a detailed resume or contact Richard White, Malla Technical Services Group, 334 Euston Road, London NW1 3BG. Tel: 01-388 2284. (3687)

COMPUTER OPERATIONS VACANCIES LEEDS

Senior Operator/Operators c. £6,400 + shift allowance

Leeds Permanent is the UK's fourth largest building society with an expanding Management Services Function and a dual IBM 303x installation based in Leeds. The Society has an impressive record of advanced computer system developments including a national on-line system to our branch network. MVS, CICS, SNA components and IBM 3380 disks are installed. Plans include IBM 3083 processors, IDMS data base and expansion of the telecommunications network to over 1500 terminals.

Additional staff are required to strengthen the Computer Operations team. The work is challenging and varied and offers the successful applicants the opportunity to work in an advanced computer installation, utilising the latest hardware and software.

Candidates for these positions must have at least two years operations experience in an IBM mainframe installation preferably in a VS environment. A practical knowledge of JCL and utilities together with experience of a large network operation would be desirable.

BENEFITS

The Society is committed to the use of modern data processing technology and therefore can offer excellent scope for career progression with the opportunity to be involved in the operation of advanced systems. In keeping with these challenging career opportunities, an excellent remuneration package is offered including contributory pension scheme, free life assurance and concessionary mortgage assistance.

Interested applicants should telephone Leeds 438181, Ext. 2373 for an application form and vacancy specification quoting reference number CW 5/83 or write to:

Mr J. Clark MBIM,
Personnel Manager,
Leeds Permanent Building Society,
Permanent House,
The Headrow,
LEEDS LS1 1NS.

the Leeds PERMANENT BUILDING SOCIETY

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Write with details of your experience, qualifications and the role which interests you to Tim Jones, Personnel Department, Marconi Radar Systems Limited, Writtle Road, Chelmsford, Essex. Telephone: Chelmsford (0245) 67111, ext. 2610.

Marconi
Radar Systems

LONDON AND THE HOME COUNTIES

SYSTEMS ANALYST
BERKSHIRE c£11,000
Our client is a leading manufacturer of engineered components and is currently engaged on a long term D.P. development plan. Hardware utilised is an ICL 2956 under DME and the successful candidate will be assessing and reappraising commercial and production systems. This will involve taking managerial responsibility on occasions in addition to involvement with future planning requirements. A flexible approach is required and applicants who could see this environment as their next career move should contact Marshall Cligman as soon as possible for further details

MAJOR INSURANCE GROUP
ANALYST PROGRAMMER c£10,500
A trouble-shooting Analyst Programmer is required by this prestigious employer based in the City. The work will involve significant analysis and a great deal of user contact, therefore good interpersonal skills are required. The position is particularly relevant for candidates with an IBM COBOL background possibly with PL/1 as a second language.

REAL-TIME SOFTWARE
PROGRAMMERS AND MANAGERS £8-£15,000
A number of vacancies exist in and outside London at ALL LEVELS for applicants with real-time experience. A knowledge of any of the following is required, RTL II, RSX IIM, MACRO II, COMMS, CAD/CAM, GEC, MOTOROLA, INDUSTRIAL PROCESS CONTROL, ELECTRONICS. As there are several vacancies please contact MARSHALL CLIGMAN for further details.

OPPORTUNITIES IN PL/1
ALL LEVELS to £12,000
We have taken on a wide range of vacancies for people with PL/1 experience recently. Our clients include SOFTWARE HOUSES, CONSULTANCIES, INSURANCE COMPANIES and INVESTMENT MANAGEMENT CONCERNS with locations in LONDON, HERTS, SURREY, MIDDLESEX and SUSSEX. If you are looking for a change of environment call TARGA immediately.

URGENT REQUIREMENTS
LONDON AND HOME COUNTIES to £15,000
DEC, PDP11, RSTS/E, BASIC+, +2 Analyst Programmers £10,000 Surrey
RPG FORTRAN and COBOL, Programming Team Leaders £12,500 Bucks
WANG VS, RPG II Programmers £9,500 London
DEC PDP11, RSTS/E BASIC+, +2 Programmers £8,500 Herts
ICL 2900, Senior Programmer, Commercial Applications £10,000 Kent
DEC, VAX, BANKING SYSTEMS £10-£16,000 London

MARKET LEADER — BERKS
SENIOR ANALYST £11,500
We are looking for an experienced Analyst capable of assuming responsibility for a team. An exciting new phase of developments is being embarked on by our clients and this is a golden opportunity to take on real responsibility. If you can demonstrate the successful implementation of a significant system in an IBM environment we would like to hear from you.

PETROCHEMICALS
PROGRAMMERS c£10,000
Ambitious young programmers are sought by this Blue-Chip organisation. Your experience should be within a DOS/VSE installation and you should have used CICS-COBOL for a minimum of six months. These are excellent opportunities for candidates who would appreciate DATABASE training and scope for personal development.

STOCK-BROKING
ANALYST PROGRAMMERS to £11,000
A rare opportunity has arisen to join a busy and progressive CITY-based company who are world leaders in their field. If you enjoy problem solving and plenty of user contact these positions will undoubtedly appeal. TRAINING in CICS is offered and we would like to hear from candidates with IBM COBOL experience who are prepared to work hard to realise their full potential in an environment where ample scope will be given for career development.

BANKING BENEFITS
SENIOR PROGRAMMERS c£11,500
We need 1/5 PROGRAMMERS and SENIOR PROGRAMMERS who are ready to expand their experience into the Banking environment. The financial benefits are, as ever, very attractive and development work is another big feature of these appointments. We are looking for IBM COBOL together with use of CICS and/or DL/1 with Program Design a feature of the more senior positions.

INSURANCE SYSTEMS
SENIOR ANALYST £14,000
Our clients are an expanding City-based Insurance company. A SENIOR SYSTEMS ANALYST is required to take a key role in their systems development plans. While experience of Insurance/Reinsurance applications is useful, candidates must have been involved in the design of On-Line/Database systems in an IBM environment. BENEFITS include MORTGAGE and TRAVEL assistance.

GSD ANALYST PROGRAMMERS AND PROJECT LEADERS
to £14,000 + CAR
Due to a policy of carefully controlled growth, our clients require a number of additional members of staff in 1983. They have been extremely successful in building systems based on the IBM 534 and 538 and require experience with this range at all levels. A superb BENEFITS package, PRESTIGE offices, and great scope for advancement are offered.

MANUFACTURER
LONDON BASED c£11,000
A leading manufacturer in the DATA PROCESSING industry is URGENTLY seeking a mature ANALYST PROGRAMMER to undertake PROJECT MANAGEMENT RESPONSIBILITY. With major development work being the area under consideration, candidates will need to demonstrate very good COMMERCIAL ANALYSIS SKILLS, major project completion from start to finish and DEC, HP, PRIME or other mini experience. An interest in office automation and good communicative skills are also an advantage. Attractive BENEFITS and excellent CAREER prospects.

MIDLANDS

TECHNICAL PROGRAMMERS
COVENTRY HIGH NEGOTIABLE SALARY
One of our largest clients is looking to considerably expand its technical and system programmers division. We are therefore looking for programmers and analyst with good FORTRAN or PASCAL knowledge and experience in CAD/CAM, communications or CAE

SOFTWARE HOUSE
COVENTRY c£9,000
DEVELOPMENT STAFF
If you have substantial experience of BASIC or BASIC+, working on any of the small business machines, this up and coming firm with an overflowing order book is ideal for you. Security, variety and good benefits are available as well as the opportunity to contribute to the growth of an expanding company.

MIDLANDS BASED
BUSINESS CONSULTANTS c£10,000
If you have RPG II or III experience and wish to move into consultancy, the ideal time is now. This large and reputable software house is looking for consultants preferably with experience on the IBM GSD ranges of machines to work on a wide variety of interesting applications.

FINANCIAL/BUSINESS ANALYST
E. MIDLANDS c£11,000
The group computing function of a large manufacturing concern is looking for an experienced Systems Analyst. A minimum of five years' overall experience with about two years spent in Analysis, preferably with some payroll experience would be ideal.

For a discussion outside of office hours, 'phone 0787 280748 or 01-995 3819. Messages regarding Midlands-based positions can be left on 021-622 3839.

TCR **Targa Computer Recruitment**

6 Liverpool Street London EC2M 7NH Telephone 01-283 9941 Telex 25851
Monaco House Bristol Street Birmingham B5 7AS Telephone 021-622 2045 Telex 334237

(3795)

MARKETING MANAGER

Midlectron Distribution are one of the UK's leading microcomputer distributors, with a nationwide dealer network, and a customer base which includes some of the country's largest OEMs and computer users.

We are looking for a marketing manager, with responsibility for the strategic planning and day to day running of the Distribution division's marketing operation.

A thorough knowledge of the microcomputer industry and experience in marketing high technology products are essential.

Written applications, with a full CV, should be addressed to
David Sargeant, Midlectron Ltd. Midlectron House, Nottingham Road, Belper, Derby. DE5 1JQ.

MIDLECTRON DISTRIBUTION

UNIVERSITY OF EAST ANGLIA Norwich

COMPUTING ASSISTANT
(TEMPORARY)

Applications are invited for the above temporary post in the School of Computing Studies and Accountancy. This is an opportunity to gain experience over a wide range of computing support activities, such as advising users, both staff and students, and programming. Some responsibility for the running of equipment is also part of the job. Preference will be given to candidates with qualifications at degree level, but applications from candidates with other qualifications and suitable experience will be considered.

The appointment will commence on 1 July, 1983, or as soon as possible thereafter, and will terminate on 31 July, 1984. The salary will be on the scale £5,550 to £6,285 per annum (under review), plus USS benefits.

Applications (one copy only) together with the names and addresses of three persons to whom reference may be made, should be lodged with the Dean, School of Computing Studies and Accountancy, University of East Anglia, Norwich, NR4 7TJ, as soon as possible before Friday 3 June 1983. No forms of application are issued. (3792)

Senior Operator ICL 2957

Jones Lang Wootton, a leading Firm of Chartered Surveyors and International Real Estate Consultants, are to install the newly released ICL2957 System, with CAFS, in August 1983, in its West End Office. A senior operator is now required to augment existing staff.

Applicants should be educated to A level standard with 18 months proven practical experience on a medium-to-large ICL Mainframe, and have a knowledge of DME 2 and VME operating systems preferably under CME. Relevant experience within an on-line environment (hardware and software considerations) is also required. You should apply if, in addition to these technical attributes, you are self-motivated, can work, train and supervise others within a small team.

A realistic starting salary is offered with generous benefits in kind.

Please apply with full curriculum vitae to: A.J. Bacchus, Esq, MBIM, AIPM, Personnel Manager, Jones Lang Wootton, Kent House, Telegraph Street, London EC2R 7JL. (3870)

Jones Lang Wootton Chartered Surveyors

EXECUTIVE SALES POSITION

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Some Continental travel
SALARY TO £11,500

- DP background or ability to learn
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- Interest in market research

Please send your cv to:

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Frost & Sullivan Ltd.
104-112 Marylebone Lane
London W1M 5FU
Tel: 01-486 8377

(3869)

ANALYST/PROGRAMMERS

Weybridge, Surrey **Salary up to £12,000**

Kewill Systems Limited is a small but expanding Systems House. We are developing a range of microcomputer based systems for production scheduling, capacity planning, stock control, material requirements planning, CADCAM, vehicle costing and scheduling.

We urgently need experienced analyst/programmers to work on the development of these systems on the latest multi-user hard-disk microcomputers and local area networks.

If you would enjoy the challenge of a very varied job, involving all aspects of systems development plus customer training and after sales support, then please telephone or write to the Managing Director:

Kewill Systems Limited
Clive House
Queens Road
Weybridge
Surrey KT13 9XB
Tel: 0932-52046

(3788)

BASSETTLAW DISTRICT COUNCIL
Queens Buildings, Potter Street, Worksop, Notts.
Post Of

Senior Assistant (Development) Computer Section

Salary Grade SO1 £8658 – £9231 pa.

Bassetlaw District Council currently have a vacancy for an experienced Analyst/Programmer wishing to progress into management.

The post holder has responsibilities in development and training.

The Council operates a CMC sovereign through the Nottinghamshire County Council ICL2978 and additionally has a Philips cash receipting system and a CM8/reality. The latter is being expanded to run the new CMC/CIPFA housing benefits package in addition to the DLO CMC/CIPFA system for which it was purchased.

Interested candidates may obtain a more detailed job specification upon request.

Application forms can be obtained from Personnel Office, Central Depot, Hundred Acre Lane, Carlton Forest, Worksop S81 9TB. (Tel: Worksop 479881 Ext. 136) and should be returned by Friday 17th June, 1983.

BOX NUMBERS

Box number replies should be addressed to:

Box Number .....

c/o Computer Weekly
Quadrant House, The Quadrant,
Sutton, Surrey SM2 5AS

Senior Analyst/ Programmer

c. £10,000 + generous relocation package and temporary housing

Do you have 2 years analysis/design experience, a sound programming background and a keen interest in structured techniques? Can you get your ideas across to other people?

We are a go-ahead local authority — with a new IBM 4341 operating under MVS with TSO/SPF, PL/1, CICS, UFO. As part of a project team you would be involved in the introduction of structured analysis/design of new systems, working closely with users.

To find out more please Angela Wheeler on Swindon (0793) 26161 ext. 3435 or write to The Personnel Officer, Thamesdown Borough Council, Civic Offices, Swindon SN1 2JH.

SWINDON
An equal opportunities employer

Mini Computer Systems Manager

Here's your chance to join a major international Company
Salary £14,000-£15,000 **West London based**

A leading International Company of outstanding repute, urgently seeks a highly professional Mini Computer Systems Manager, to be part of their expanding group in West London, although travel abroad to Europe will be necessary.

The task is a challenging and responsible one and requires someone who is capable of working under pressure and making the right, important decisions, and is also prepared to implement any changes which would maximise the company's long-term efficiency and success. An excellent knowledge of Data processing, including 'COBOL' on mini computers and General Applications Packages is vital.

The successful candidate, ideally aged over 27 years, will also have worked as a Programmer through to a Systems Analyst and will already have had some managerial responsibilities, gaining between 5-7 years' experience.

A salary of £14,000-£15,000 and a generous benefits package is offered, as well as excellent prospects for rapid advancement within the company. For further information about this vacancy, either telephone Steven Knowles-Baker, on 01-370 2012/3 or send a brief c.v. to him at N.K.B. Associates Limited, 159A Gloucester Road, London SW7 4TH, as soon as possible. All enquiries will be treated in the strictest of confidence. (3813)

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CONTRACTS

Force Eight Computer Services is an established software house divided into three areas:- Contract Recruitment, Project Management and Training.

Below are a selection of the immediate contract positions we have at present. If you are an experienced and professional contractor available or becoming available soon, or should you wish to discuss the possibility of becoming a contractor, please telephone **Jackie Robbins** of our **Resources Division** on **01-680 3761** for further information or send your full c.v. which will receive our prompt attention.

Programmer/Analysts ICL 2900 VME/B
System Analysts IDMS COBOL
We have a number of vacancies in this area all at different levels for six month contracts both within the U.K. and overseas.

Programmers IBM System 34/38 RPG II, III
Experience of System 34/38 conversion essential.

Senior Programmers BURROUGHS 6700, 6800
Analyst Programmers DMS2 COBOL, GEMCOS
Five years' Burroughs experience essential for six month contracts.

Analysts OS/VSI VM CICS
Analysts required with programming background preferably in PL/1 for six month contract in Kent. Immediate.

Force Eight Computer Services
8 Mint Walk, Croydon, Surrey, CR0 1EA.

If you can do your job standing on your head...

Isn't it time you changed position?

All too often the firm you've joined to further your career in data processing can offer you stability and not a lot besides. No new challenges, no widening of experience.

Are you tired of writing the same type of programs?

Isn't it time you considered the variety and other advantages that a career with Boots can offer?

We're one of the biggest retailing and manufacturing groups around, with over 1000 branches in the U.K. alone. We have a 400-strong D.P. Department based at Nottingham, where systems development staff work in small project groups on an extensive range of D.P. applications: Inventory Control, Marketing, Personnel Database, Production Planning, and Research Trials – to name but a few. You'll broaden your knowledge with Boots, gain experience of projects and systems and have the opportunity for career advancement within one organisation.

If you want to make a move, why not combine a new challenge with a secure future and join one of our Teams working in the following Project Areas.

These opportunities are open to PROGRAMMERS/ANALYST PROGRAMMERS/SOFTWARE PROGRAMMERS with at least 2 to 3 years' experience.

DL/1 Personnel Database

– working with on-line systems, using CICS/INTERPERS, providing support for the integrated Payroll, Pensions and Personnel Systems and having additional responsibility for applications such as Statutory Sick Pay. IBM experience essential, knowledge of DL/1 and/or Datamanager desirable.

Payroll–Unipay

– involving the implementation of a UNIPAY package and the development of associated payroll systems needed for a total staff of approximately 65,000 spread over many sites throughout the U.K. IBM experience essential and a knowledge of COBOL and/or DL/1 desirable.

Merchandise Control

– **either** developing a large advanced mainframe system designed to account for the movement of all merchandise between branches, warehouses and suppliers **or** installing a new and rapidly expanding specialised stock control system which will run on distributed mini-computers. Experience must include COBOL and IBM mainframes/mini-computers, preferably HP 3000's.

Research

– developing a complex on-line system to provide support for all aspects of the Toxicological studies carried out in the Company's Laboratories. A good working knowledge of FORTRAN, or experience of DIGITAL hardware, preferably with RSX11 real time operating system, is required.

Software Programming

– to work with our specialist Technical Support staff and play an important role in a continuing programme of expansion. We now have 3081 and 3032 main frames running on the MVS/SP operating system. These staff plan and implement major software developments, handle a variety of short-term projects such as evaluating and installing software packages and diagnose and solve day-to-day problems. Experience must include IBM ASSEMBLER plus a knowledge of MVS or CICS and DL/1.

A further advantage of working for Boots is the environment. Our computer staff work in modern offices situated either in 300 park-like acres at Beeston, or two miles away in the centre of the attractive City of Nottingham. A City well-endowed with amenities, entertainment and low-cost housing.

Other benefits include salaries within the range £7k - £11k, dependent upon experience, relocation expenses where applicable, profit sharing, pension schemes and staff discount facilities.

Want to know more about your new position?
Then write to or telephone Janet Thompson, Employment Services, The Boots Company PLC, Head Office, Beeston, Nottingham NG2 3AA. Tel (0602) 56111 ext 2321.

Boots

ACCOUNT MANAGERS

Switch over to gandalf

Target £24,000 plus + Choice of Car

The year's most significant event in the data communications business is the arrival of GANDALF DIGITAL COMMUNICATIONS LTD as a direct sales force in the United Kingdom. With an impressive UK manufacturing facility now well established, the company is intent upon achieving startling growth both from its existing customer base and from new accounts.

The aim is to create a highly motivated, top quality sales team capable of marketing existing and new generation products to major end-users and OEMs. A strategy of high-level negotiation with named key accounts is envisaged.

Candidates must be able to demonstrate a PROVEN sales track record with a systems orientation, ideally in data communications. In addition, commitment and drive will be essential to fully contribute to and benefit from such a growth opportunity.

The sales and marketing structures are embryonic, and obviously allow top performers EARLY MANAGEMENT OPPORTUNITIES in a company which places the highest priority on developing its people. High achievers can also expect EXCEPTIONAL REWARDS from an attractive employment package, which includes a high basic salary.

For further information, telephone Paul Child on Windsor (07535) 56155 from 8.30 to 6.30 or on 04868 7403 from 8.00pm. Alternatively write to Kramer Westfield Associates Ltd, 23 Victoria Street, Windsor, Berks, SL4 1HE.

Kramer Westfield

Digital Signal Processing

Cambridge Consultants Limited is one of the U.K.'s leading contract design and development organisations, carrying out work in electronics, physics and software for a wide range of clients. We are 160 strong, and are situated in pleasant surroundings on the Cambridge Science Park.

We are active in all areas of digital electronics, including digital communications and signal processing, semi-custom LSI design, and microprocessor systems. Our Engineers are involved not only in state of the art design work, but also in talking to our clients, preparing proposals and managing some of the projects in which they are involved.

We are looking for an Electronics Engineer with industrial or research experience in designing digital signal processing systems to join our Digital Processing Group. He or she will be involved not only in applying DSP techniques within systems, but also in all the other aspects of electronic and software system design.

The successful applicant will probably be in the age range 25-30, and the starting salary in the range £9,600 to £13,000. We also offer a number of additional benefits, including flexible working hours.

To apply, please contact: Janet Hales, Personnel Officer, **Cambridge Consultants Limited,** Science Park, Milton Road, Cambridge CB4 4DW. Tel: Cambridge (0223) 358855.

CCL DESIGN AND DEVELOPMENT

(3803)

Programmers

Banbury, Oxfordshire

Having recently transferred their systems to IBM hardware, our Clients are embarking on a major development project and require 2 programmers to join the Systems and Programming Team.

They need applicants in their mid 20s –

- ★ with a minimum of 18 months COBOL experience
- ★ familiar with IBM/DOS/VSE (4300)
- ★ who prefer a small team environment
- ★ preferably with CICS/DLI experience (although training is available)

This Company is part of a large Finance Group, consequently previous experience in a similar environment is a distinct advantage.

The salary is competitive and the range of fringe benefits is both extensive and generous.

If you are looking for a challenge in a stimulating environment please write with details of career history to Confidential Reply Service, Ref ABP 723, Austin Knight Limited, Tricorn House, 51-53 Hagley Road, Edgbaston, Birmingham B16 8TP.

Applications are forwarded to the Client concerned, therefore Companies in which you are not interested should be listed in a covering letter to the Confidential Reply Supervisor.

Austin Knight Advertising

UMIST
DEPARTMENT OF COMPUTATION
TWO INFORMATION TECHNOLOGY LECTURESHIPS

Applications are invited for two new lectureships created by the recent UGC Information Technology Initiative. The lecturers are required to join the team teaching the Data Processing stream of the successful MSc Conversion Course. Their duties will also include support for the undergraduate course, to conduct research and to play a role in the administration of the Department.

Preference will be given to applicants with research interests in Data Bases, Man-Machine Interface Design and Distributed Computer Systems. Applications will be particularly welcome from candidates with a research degree or industrial experience in any of these areas.

Requests for application forms and further particulars, quoting reference COM/60/SC, should be sent to the Establishment Section, Registrar's Department, UMIST, PO Box 88, Manchester M60 1QD, as soon as possible.

(3754)

LOTHIAN REGIONAL COUNCIL
DEPARTMENT OF EDUCATION
NAPIER COLLEGE OF COMMERCE AND TECHNOLOGY

RESEARCH FELLOW or RESEARCH ASSISTANT
Department of Chemistry
Salary on Scale £5315-£6986 or £5973-£7791

required to undertake the development of computer software for distributed array processor applications to protein structure analysis.

The post is funded by SERC for up to three years and applicants should normally possess a PhD or equivalent post-graduate experience. A thorough knowledge of computer programming is essential and a keen interest in protein structure and/or X-ray crystallographic techniques is highly desirable. Initial salary is dependent on qualifications.

Application forms and further details can be obtained from:
The Administrative Officer (Personnel), Napier College of Commerce and Technology, Colinton Road, Edinburgh EH10 5DT

(3778)

GRADUATE PROGRAMMERS

Required by Consultants engaged in independent assessment studies of defence systems and other complex engineering projects.

Candidates should have at least 2 years' experience in real-time applications. Experience in PDP11, CORAL and MASCOT would be an asset. Salary from £7,500, depending on qualifications.

Apply, with full c.v., to:

Rex, Thompson & Partners
Newhams, West Street,
Farnham, Surrey GU9 7EQ.
Telephone: 0252 711414

(3774)

Saudi Arabia: £36,000 plus package

Thames Valley: £17,000

Samecon, an international company with offices in Saudi Arabia and the Thames Valley is seeking to recruit the following staff:

Saudi Arabia — Analysts
Systems Designers
Systems Managers
Computer Operators

Thames Valley — Analysts
Senior Programmers

At least 5 years experience in a general commercial environment is required and qualifications in engineering or accounting would be particularly desirable. Operators and programmers must have experience of Perkin Elmer 3200 range computers running OS/32, Reliance and Cobol.

Salary levels will be commensurate with experience:

Saudi Arabia: to £36,000 p.a. tax free plus free accommodation, car allowance and free health care. 2 year contracts.

Thames Valley: to £17,000

If you are confident about accepting one of these challenging positions, please write enclosing a C.V. to:

SAMECON

The Personnel Manager,
Samecon,
Harleyford Marina,
Marlow,
Buckinghamshire.
Tel: (06284) 74245

All replies will be treated in the strictest confidence.

Offices in: Riyadh, Hamburg, Philadelphia, Marlow

ANALYST PROGRAMMER

West London neg. around £12,000

The major systems development programme of this fast-growing specialist service organisation – part of the largest US leasing/rental group – calls for the recruitment of a business orientated analyst programmer.

Reporting to the Finance Director you will be responsible for ensuring the smooth installation and implementation of the company's new mini-computer based systems including the selection of relevant software and peripherals. This will involve liaison with all levels of management within the UK and with peer groups in the USA. Applicants should have had at least four years experience and be capable of handling all aspects of creating a DP unit – from systems design through program writing to implementation – and of working closely with external suppliers. Recent experience of DEC equipment, ideally using BASIC under RSTS/E, is essential.

The rewards for this "self-management" will be a high degree of autonomy as well as the opportunity for personal development with a highly profitable service organisation. Salary will be in the region indicated but will not prove an obstacle to the right candidate.

Call David Mason Johns today on 01-948 5922 (24 hour answering service) on 01-747 0989 (evenings and weekends) for an application form, alternatively write to him at the address below. Please quote Ref D8334/CW.

(3557)

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Abbey Life is one of Britain's leading assurance companies with a long history of expansion. Within the company Data Processing is playing an increasingly important role with our Systems Development and Teleprocessing facilities continually being upgraded. Just one example of this is the IBM 3083 E16 we've just installed with another one scheduled in the future.

This means that anyone joining us now will be presented with very real opportunities for career development; and at the moment we'd like to talk to:

APPLICATION PROGRAMMERS-COBOL SYSTEMS PROGRAMMERS (£7,500-£13,000)

We operate a country-wide Branch Networking System using IBM mainframes under MVS SP 1.3 plus JES 2 shared spool with networking under SNA/VTAM – MSNF/NCP. Amongst the development aids in use are ROSCOE, LIBRARIAN, DATAMANAGER, TESTMANAGER, ABEND-AID and PC/70.

The Benefits

In addition to a salary of between £7,500 and £13,500 p.a. (depending on your experience), there is an impressive range of benefits. These include a mortgage subsidy scheme, a relocation package, non-contributory pension scheme, free life assurance, a training scheme, a subsidised restaurant and a sports and social club. Also, of course, you'll enjoy the relaxed lifestyle of living in an exceptionally pleasant coastal town.

Qualifications

COBOL Programmers applying should have had at least three years experience after training. Systems Programmers are required to have an ASSEMBLER background with a minimum of three years experience in the installation and maintenance of CICS/VS, OS/VS or MVS/SP 1.3. All applicants must hold at least two 'A' levels.

To Apply

Please write or telephone for an application form to:
Val Hastrop or Alison Potter, S & D.P. Technical Recruitment:
Abbey Life Assurance Co. Ltd., Abbey Life House, 80 Holdenhurst Road, Bournemouth, BH8 8AL.
Tel: Bournemouth (0202) 292373 Ext. 4444

Abbey Life

Sales & Marketing Manager

Central London & Home Counties — £25K on target + car

Our client is one of the pioneers in the development of the microcomputer market in the UK, marketing packaged systems based on well known 8 & 16 bit micro's and minicomputers. Over the past five years a range of business software packages have been successfully installed within a wide variety of small and large users. The company has substantial expertise in developing and maintaining software for new business systems and following the recent introduction of a new and exciting range of micro's they are looking to expand their user base yet further.

Applications are invited from experienced sales and marketing professionals to join the executive management team in order to determine the company's marketing policy and to carry it through to a successful conclusion. The emphasis will be on a 'total involvement' approach and in the early stages it is important to make a contribution through incremental business.

Candidates should have an established track record in sales of micro's, mini's or business systems, complemented by a sound knowledge of commercial applications. In addition the ability to implement creative marketing policies will be a significant and determining factor.

The remuneration package includes a high basic salary, a negotiable initial guarantee and a generous commission scheme and it is expected that the successful candidate will become involved in an equity partnership within the first two years.

In the first instance contact Chris Denington on 01-631 4184 or write to him at:
A & A Consultants (Holding) Ltd, County House, 10 Little Portland Street, London W1N 5DF.

Are you up to the challenge of a top Systems Consultancy?

WE REQUIRE CONSULTANTS, SYSTEMS ENGINEERS AND PROGRAMMERS SALARY £7,500 TO £16,000.

If you have a degree, or equivalent, plus two or more years' experience in the development of systems and software tools we would like to hear from you.

We want professionals with experience in real-time mini and micro-computer systems development and implementation.

You will enjoy the prospect of contributing to a rapidly growing organisation.

Systems Designers is a leading international systems consultancy specialising in the mini and micro-computer areas.

We offer consultancy, systems and software development services, and a range of latest technology software products.

Project involvement covers a very broad spectrum. Opportunities exist in all five operational areas and there's scope for working in the UK, Europe and North America.

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Videotex and high availability systems for electronic funds transfer.

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Analysis, research and project management services.

INDUSTRIAL SYSTEMS
Real-time systems, particularly in the energy field.

GOVERNMENT SYSTEMS
Specialising in communications and defence systems.

SOFTWARE TECHNOLOGY
Systems Software research, development, products and consultancy.

For further information contact Pamela Hayes-Jones on Freefone 3179. Or write to her at Systems Designers, Systems House, 105 Fleet Street, Fleet, Hampshire, GU13 8NZ.

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UCA 01-458 8533

MANAGER NEW TECHNOLOGY

£11,859 to £13,116

Applications are invited for this new post from persons with sound experience in computing, business and management, and preferably some experience of teaching/instructing young people. Practical experience in those areas of new technology, including computer programming, word processing, computer maintenance and electronics is required.

The Manager will be responsible for, and involved in, setting up and running an Information Technology Centre (ITeC). This Centre is the result of an initiative by Southampton City Council, in conjunction with the Department of Industry and the Manpower Services Commission. The ITeC will provide a group of 30 unemployed young people with training and work experience in a range of adaptable skills and thus improve their prospects of either finding permanent employment or entering further training.

Removal and resettlement expenses payable.

Application forms available from the Personnel Manager, 9th Floor, Arundel Towers North, Portland Terrace, Southampton, SO9 4ZF. Telephone Southampton 23855, Extension 643.

(Previous applicants will automatically be considered).

Closing date 8th June 1983.

Southampton City

(3783)

UNIVERSITY COLLEGE LONDON
Department of Computer Science

SYSTEMS MANAGER; ENGINEER

Vacancies exist for two posts in the above department.

One post is as SYSTEMS MANAGER; here experience of C and the UNIX operating system are important. The second post is as ENGINEER to develop and maintain computers and digital electronics (including communications).

The department is starting a new M.Sc course specialising in Computer Aided Design in collaboration with the Electronic Engineering Department. It has a very active program of research in the areas of computer communications, databases, distributed systems, and multi-media communication. Data communications within the Department is provided by a number of Cambridge Rings and gateways provide access to wide area networks. A satellite ground station has been installed for interconnection of geographically separated local area networks. Some half dozen medium-sized computers provide internal services.

Applications for the above posts, enclosing a c.v. and the names of two referees, should be sent to Professor P. T. Kirstein, Department of Computer Science, University College London, Gower Street, London WC1E 6BT. Salary will be in the range £7,535-£13,608 per annum (inc. London Allowance) for the first post and £7,499-£9,865 p.a. for the second. The point on the scales would depend on age and experience. Closing date: 3 June, 1983.

(3740)

POLYTECHNIC OF THE SOUTH BANK
Department of Mathematical Sciences and Computing

Temporary (two years) Principal Lecturer

and

Temporary (one year) Lecturer II/ Senior Lecturer

in

COMPUTER SCIENCE

Applications are invited for the above posts. Applicants will be expected to make a substantial contribution to the teaching to final Honours degree level and research in one or more of the following areas: Operating systems, computer graphics, computer assisted learning. Additional teaching duties could include program design in Pascal and introductory computer systems.

The Principal Lecturer post is open to candidates of resourcefulness and leadership possessing a substantial publications record and/or industrial experience. The person appointed will also be expected to take on some significant administrative responsibilities.

Salaries for the scales are as follows:

Principal Lecturer	£11,931-£15,018	plus London Allowance £939
Senior Lecturer	£10,173-£12,816	
Lecturer II	£6,865-£11,022	

It is hoped to appoint suitable candidates without delay and so *immediate* application is advised. Further details of the Department and its activities, together with an application form, may be obtained from the Staffing Office – 01-928 8989, Ext. 2356.

(3698)

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(3768)

SALES BIT

Quality of Management – 53

In the end it's the money that matters

IN the final analysis, remuneration is the most important consideration of any job. No matter how much satisfaction an occupation may give, no matter how good the relationship between employer and employee, no matter how attractive the product and marketplace if the money is wrong then sooner rather than later the situation has to be resolved.

This usually means moving to a new employer who really understands what the job is worth. It may be a reluctant departure, but someone has to pay the building society, the bank manager, the butcher, the baker and the many other millstones of the committed bread winner.

The financial considerations of salespeople are usually different from those of other types of employees. Salespeople are typically more concerned about how they are paid rather than what they are paid.

One of the real attractions of selling as a professional occupation is that it is performance-related. If you succeed you earn more than the average employee, if you fail you get less. So, any salesman worth his salt expects to win most of the time and will therefore wish to be remunerated in a manner that matches high achievement with high reward.

It may seem like a contradiction to say that salespeople seldom change jobs merely for higher rewards; but it's true. However, there are two basic factors which have to be borne in mind – the going rate for that particular job in that particular industry or market sector, and the salesman's "bottom line" in terms of the minimum income he needs to maintain his social and domestic obligations in a manner to which he is accustomed.

No salesman can be settled and committed in his job unless he is achieving the higher of the two. Consequently, salespeople tend not to leave an employer for financial reasons if the package is around the industry standard. But they may decide to depart if the way the remuneration is created is inappropriate in terms of the sales objectives that have been set for them.

The level at which a salesman should be paid depends on a variety of factors, but this does not include consideration of what other people in other roles within the same company are earning.

If other employees want to run the risk of performance-related income let them try and get into selling. After all they could also increase their income by taking up brain surgery if they are vocationally suited to it! No, the most important consideration is the rate at which salespeople within your particular industry are paid.

There are several ways of establishing this information. Recruitment advertising within the trade and national press can provide useful input, so long as you are not taken in by the "on-target earnings trap" that I wrote about a few weeks ago.

Trade associations can also provide useful assistance, and if you have a personnel department you may find that they interchange information with personnel people from similar industries and companies. On the other hand, if you have a personnel department your control over remuneration levels may be considerably limited. Your friendly neighbourhood sales recruitment agency should also be able to provide some input if they've got their act together.

There are other considerations. What is the cost of taking on a new employee, and what will be the cost if a thoroughly experienced salesperson leaves? If you pay too high, what kind of people are you likely to attract? Possibly undisciplined, erratic, disloyal, aggressive, avaricious loners who are only in it for the money and will leave you the instant there is a better deal available.

If you pay too low, those who know what they are worth in the marketplace (and that has to be most of them!) won't bother to apply and those who do join you are likely to be inadequate; and others will always be susceptible to the siren call of job-ads and head hunters.

Just think about the cost of replacing an experienced and accomplished salesman – all that lost revenue while you're getting the new guy up to speed.

It can take a long time to become completely fluent with a new company, product, client base, territory layout and all those other ramifications of running a sales area effectively. Time spent pursuing such knowledge is time diverted from selling, so the amount a salesman should be paid is that which significantly reduces the odds of his departure for reasons of reward; for the financial implications of the departure of a successful salesman in terms of lost revenue outweighs the cost of even over-remuneration by many, many times.

Yet the sales manager is unlikely to find an adequate replacement for the money that was paid to the previous incumbent. After all, the going rate has been established by his very departure.

Alan Williams

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Information Technology Centre, Caernarfon

The Gwynedd County Council is sponsoring a Government Information Technology Centre to provide skilled training in modern technology and production, electronics, use of computers and modern electronic equipment by practical and theoretical training. The project is funded jointly with the MSC.
The Centre will be situated in CAERNARFON and the first intake of trainees will be in July.

General Manager
PO1 (3-7) £10,071-£11,184
Responsible for overall management of the Centre, including liaison with outside bodies, marketing products, and advising on technical innovations. Candidates should have experience of most of the following: electronics, computer programming, keyboard skills, data manipulation, software, equipment maintenance, word processing and management.

Senior Instructor
SO 1/2 £8,658-£10,071
Reporting to the General Manager and responsible for four Instructors and thirty young Trainees. The post is as above – Candidates must have specialist experience in at least two of those areas required for the General Manager.
It is envisaged that both these posts will provide permanent employment subject to receipt of annual grant aid from the MSC.
A knowledge of Welsh would be an advantage for both posts.
Relocation allowances in appropriate cases.
Application forms and further particulars from the County Personnel Officer, County Offices, Caernarfon. Telephone Caernarfon 4121 Ext 311.

Canolfan Technoleg Gwybodaeth, Caernarfon
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Lleolir y Ganolfan yng Nghaernarfon a derbynnir yr hyfforddeion cyntaf ym mis Gorffennaf.

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Cyfrifol am reolaeth gyffredinol y Canolfan, gan gynnwys cydweithio a chyrff allanol, marchnata cynnyrch a rhoi cyngor am ddyfeisiadau technegol newydd. Dylai ymgeiswyr fod a phrofiad o'r rhan fwyaf o'r canlynol: electroneg, rhaglennu cyfrifiadur, medrau allweddell, trin data, meddalion, cynnal a chadw offer, prosesu geiriau a rheoli.

Uwch Hyfforddwr
SO 1/2 £8,658-£10,071
Atebol i'r Rheolwr Cyffredinol a chyfrifol am bedwar Hyfforddwr a deg ar hugain o Hyfforddeion ifainc. Mae'r swydd fel yr uchod – Rhaid i ymgeiswyr fod a phrofiad arbenigol mewn o leiaf ddau o'r meysydd hynny sy'n ofynnol ar gyfer swydd y Rheolwr Cyffredinol.
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Central Regional Council

(3828)

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For further details please contact Christine Davis on 01-387 7930

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Closing date for applications Monday, 13th June.

(3827)

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Successful applicants for both these positions will ideally have
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- experience of working in an environment where user liaison is an important aspect of the job.

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If you are interested please call Anne Green, John Lowry or Kevin McCourt on 01-568 4277, or write to them at:

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Systems Analysts
£11,000-£13,000

MINET is one of the largest and most successful International Insurance Broking Groups based in the City of London. We are committed to using computer technology to increase our efficiency and provide a quality service to our clients.
To meet these objectives our DP Department has expanded rapidly over the last 2 years. New IBM 4341, IBM Series 1, and WANG VS equipment has been installed.
We are currently preparing a plan aimed at developing a new generation of systems to support all of the main areas of our business. To help implement this plan we need Senior Analysts and Analysts who can demonstrate a record of achievement in their career to date.
Emphasis will be placed upon personal ability and achievement rather than specific applications experience.
Considerable importance is attached to technical and management training and the basic benefits package includes 4 weeks annual holiday, pension and life assurance scheme, sickness benefit scheme, season ticket loan, LVs., subsidised staff restaurant and sports & social club. Where applicable relocation assistance will be provided.
To find out more telephone Andrew Macleod on 01-481 0707 Extension 3506 or write to him, enclosing details of your career to date at:

Minet

Minet House, 100 Leman Street, LONDON E1 8HG